DOCUMENT RESUME

ED 186 699 CE 025 272

AUTHOR	Gottfredson, Linda S.
TITLE	Change and Development in Careers. Final Report.
INSTITUTION	Johns Hopkins Univ., Baltimore, Md. Center for Social Organization of Schools.
SPONS AGENCY	National Inst. of Education (DHEW), Washington, D.C.
PUB DATE	Apr 80
GRANT	NIE-G-76-0075
NOTE	413p.
EDRS PRICE	MF01/PC17 Plus Postage.
DESCRIPTORS	Behavior Change; *Career Change; *Career Choice; *Career Development; Education Work Relationship; *Employment Patterns; National Surveys; *Occupational Aspiration; Occupational Information; Social Change; Vocational Interests; Vocational Maturity; Work Attitudes

ABSTRACT

This report describes a study that examined three types of change that affect career development: (1) changes in jobs and behavior that occur as people mature and age, (2) cultural changes that alter the opportunities and attitudes of people born at different times in history, and (3) changes in the environment that affect the opportunities and behavior of people. Following an introductory chapter, chapter 2 reviews the major approaches to career development in sociology and psychology while chapter 3 outlines how the two approaches can be combined. Chapter 4 describes the development and validity of the occupational status and the occupational field classifications. The fifth chapter describes the National Longitudinal Survey data used in the study. The next three chapters describe patterns of career outcomes: the employment status and kinds of work held at different ages, the occupational aspirations men have at different ages, and the extent to which earlier aspirations and jobs determine later jobs held. Chapter 10 focuses on family and personal background variables that are associated with entering different fields and levels of work, while chapter 11 focuses on the influence of educational and economic environments. The final two chapters review the theoretical and practical implications of the study. (LRA)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED186699

CHANGE AND DEVELOPMENT IN CAREERS

Final Report

Grant NIE-G-76-0075

Linda S. Gottfredson
Center for Social Organization of Schools
Johns Hopkins University
Baltimore, Maryland

April 1980

CE 025 272

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

Acknowledgments

Many people provided assistance and advice, but the following people made major contributions to this project. Vicky C. Brown provided invaluable assistance throughout most of the life of the project; she helped to adapt the NLS data set to our computer installation and particular analytical needs, performed many analyses, edited and typed manuscripts, and helped to write Chapter 10 of this volume. John L. Holland and Gary D. Gottfredson provided advice at many stages of the research and provided critical readings of the various manuscripts which have been incorporated into this report. Henry J. Becker helped to write Chapter 9. Denise C. Gottfredson and Carol Weinrach provided computer assistance. All errors and inadequacies in this volume are my own, however.

The opinions expressed in this report do not necessarily reflect the position or policy of the National Institute of Education, and no official endorsement by the Institute should be inferred.

Portions of this report have been presented in journals, technical reports, and at professional meetings. Sections of chapters may be found in the following sources.

Chapter 4: Gottfredson, Linda S. The construct validity of Holland's occupational classification in terms of prestige, census, Department of Labor and other classification systems. *Journal of Applied Psychology*, in press.

Chapter 8: Gottfredson, Linda S. Aspiration-job match in a large, nationally representative sample of white men. *Journal of Counseling Psychology*, 1979, *26*, 319-328.

Chapter 9: Gottfredson, Linda S. and Henry J. Becker. A challenge to vocational psychology: How important are aspirations in determining career development? Report No. 294. Baltimore: Johns Hopkins University, Center for Social Organization of Schools, 1980.

JUN 13 1980

Chapter 10: Gottfredson, Linda S. and Vicky C. Brown. Occupational differentiation in the first decade after high school. Report 259. Baltimore: Johns Hopkins University, Center for Social Organization of Schools, 1978.

Chapter 11: Gottfredson, Linda S. Racial differences in the evolution of educational and occupational aspirations. Paper presented at the annual meeting of the American Educational Research Association, April, 1979.

Chapter 12: Gottfredson, Linda S. The implications of some results of labor market studies for stratification theory. Paper presented at the annual meeting of the American Sociological Association, August, 1979.

Chapter 13: Gottfredson, Linda S. and Henry J. Becker. A challenge to vocational psychology: How important are aspirations in determining career development? Report 294. Baltimore: Johns Hopkins University, Center for Social Organization of Schools, 1980.

TABLE OF CONTENTS

Theoretical Background

Chapter 1. Overview of the study 1

Chapter 2. Two career development models of the last decade. 8

Chapter 3. An integrated approach to career development. 37

Measurement and Analysis Issues

Chapter 4. Classifying occupations: A status-field scheme 53

Chapter 5. The National Longitudinal Study 103

Chapter 6. Studying change and development 121

Patterns of Career Outcomes

Chapter 7. Employment patterns: Where do men end up?. 150

Chapter 8. Aspirations: What do men want and do they get it?. . . . 180

Chapter 9. Aspirations: How important are they in determining later jobs? 211

Determinants of Career Development

Chapter 10. What determines how men are distributed to jobs?. 238

Chapter 11. How do environments affect the evolution of educational and status aspirations? 272

Implications

Chapter 12. Implications for stratification theory. 298

Chapter 13. Implications for vocational theory and practice 322

References 341

Appendices

Appendix A. Duncan status scores and first-letter Holland field codes used in this volume to classify occupations 362

Appendix B. Standard errors of percentages. 374

Appendix C. Enterprising occupations. 385

Chapter 1

OVERVIEW OF THE STUDY

How many people get the jobs they want? Who gets the most desirable jobs in society? To what extent are the handicaps or advantages of parents passed on to their children? Just how do people end up where they do in society and how do they feel about it? Such questions have been of concern to philosophers, academics, politicians, and workers for centuries, because the way a society staffs its division of labor affects the productivity and stability of a society. This process has been of concern also because it results in some workers having satisfying and well-paying jobs but others not. We have seen lively debates on these issues with recent books such as Who Gets Ahead (Jencks & Bartlett, 1979), Schooling in Capitalist America (Bowles & Gintis, 1975), and The Declining Significance of Race (Wilson, 1978).

Views of Occupations and Success

Social scientists have devoted considerable effort to discovering what makes one job better than another and to explaining why some people get good jobs whereas others do not. These explanations depend, however, on what is considered a good job. Sociologists have generally assumed that there is a shared public standard for determining what a good job is and they cite the high correlations between occupational prestige ratings made at different times and by different social groups as evidence supporting this assumption. A good job is one that is prestigious or that pays well. Jobs that are prestigious are usually also economically rewarding, so a unidimensional status scale is used to rank occupations. The occupational world is seen as a ladder, good occupations being high on the ladder and difficult to reach. All people compete to rise on the ladder,but only those with the best resources are likely to reach the highest rungs. Research on occupational achievement has therefore focused on discovering which resources--such as education, intelligence and social background--are most important and just how people convert their resources into occupational status and income (Duncan, Featherman and Duncan, 1972; Sewell and Hauser, 1975; Mincer, 1974).

Few people would deny that income and occupational status are important ingredients for a desirable and satisfying job, but other job attributes also affect the quality of life a worker experiences. Indeed, sociology is beginning to turn away from a unidimensional view of jobs.Vocational psychologists of the trait-factor tradition have concentrated on some of these other attributes. They see jobs differentiated not only by the level of skills required, but also by the types of skills required--attention to detail, persuasiveness, creativity, and interpersonal skills. Their classifications organize occupations into groups primarily according to activities performed and worker traits required rather than according to their socioeconomic rank. Similarly, workers are seen as having different traits and abilities and preferring different types of work. Job satisfaction and performance depend on getting a job that matches or is congruent with one's interests and competencies. To many vocational psychologists, then, a good job is one that matches the interests and skills of the worker, and what is good for one worker may not be for another. Likewise, a worker who is good at one job may not be good at another even though the two jobs may require the same level of general ability. Workers are assumed to seek congruent jobs, and employers are assumed to seek employees congruent with the requirements of their job openings.

Although the sociological and psychological approaches both ask the same broad question--Why are some workers successful and others not?--each asks, and answers, the question in a different way. Sociologists divide the world into socioeconomic levels and ask how people are distributed to different levels. In contrast, vocational psychologists divide the occupational world primarily according to functional kind of work. They ask what kinds of people choose and adjust best to different occupational fields. The sociological approach stresses the barriers that people face in moving up the occupational ladder; the psychological approach examines the processes by which people make, implement, and adjust to their choices for different kinds of work.

Both approaches are important in explaining why people end up with different occupations, but the two traditions continue to develop separately, stressing different issues and ways of looking at the occupational world. These differences can be summarized by saying that sociologists focus on vertical differences among jobs and psychologists on horizontal differences. And it often appears as if the two disciplines were studying different ends of the same animal but were unable to either comprehend or see the relevance of what the other has learned.

One objective of this volume is to make a case for using both dimensions of jobs when studying career development. This contributes to a better understanding of career development , both because the disciplines have much information to share if a common language can be developed and also because the mating of two very different views of career development is bound to produce hybrid vigor in the field. Calls for interdisciplinary approaches are always lauded, though less often followed, perhaps because the odd-looking offspring are likely to be rejected by both parents.

Views of Change and Development in Careers

Neither of the approaches to career research just described has much to say about development and change in careers. Three types of change can be identified that affect career development: (a) changes in jobs and behavior that occur as people mature and age (developmental changes), (b) cultural changes that alter the opportunities and attitudes of people born at different times in history (cultural change resulting in cohort differences), and (c) changes in the environment that affect the opportunities and behavior of many people currently in the labor market (differences because of period in time that may affect many cohorts or ages). Some vocational psychologists, particularly those identifying with the developmental theories in that field (Super, 1963; Krumboltz, et al, 1978), stress the importance of developmental processes but they have produced little empirical work. Sociologists have been concerned with cultural changes and how they affect mobility chances, but the interest in cultural change seems incidental to most current work in that field. Other sociologists are trying to grapple with the problems of studying job change during careers by identifying "career lines" (Spilerman, 1977) or using Markov models (Sorenson, 1977), but as yet little descriptive information about career development is available. Few sociologists (Winsborough, 1975) have tried to examine all three types of change simultaneously.

A distinctive feature of this volume is the effort to study change, all three types of change. The results are largely descriptive, but they represent a serious effort to capture the dynamics of career development. This emphasis on dynamics alters the questions stated on the first page. We cannot content ourselves with the question "where do people end up?" because it is not at all clear that we can say people "end up" anywhere. Although environments can be unchanging and career stability does increase with age, many people may keep moving throughout their careers. And movements in early career may be important in determining the direction a worker eventually heads in.

The emphasis here on the different types of change also points to the importance of paying attention to people's social and economic environments and how these environments change over time. Once again, both approaches described above are still weak in the study of environments. Both have focused primarily on the attributes of individuals that affect career development and are only beginning to survey the environment for its role in shaping careers development.

Having said that this volume focuses on two neglected topics, the study of change and of environments, I should caution the reader that I am somewhat restricted in my ability to measure both because of the nature of the survey data I have relied on. But survey data typically allow more examination of these issues than has usually been undertaken. And, of course, theoretical speculation is not bounded by the availibility of data.

Issues Examined in This Volume

The following paragraphs preview the issues dealt with in each chapter to follow.

Chapters 2 and 3 present the theoretical background of this study. Chapter 2 reviews the major approaches to career development in sociology and psychology--the status attainment and the congruence models--and it shows the value of integrating them for a fuller understanding of career development. Chapter 3 outlines how the two approaches can be combined and it provides an integrated model of career outcomes and determinants.

Chapters 4, 5, and 6 review measurement and analysis issues--how to measure occupations, what the survey data used in this study are like, and how to study change and development. Chapter 4 describes the development and validity of the occupational status and the occupational field classifications that are basic to, respectively, the status attainment and congruence models of career development. This chapter then shows how they can be combined into a single status-field scheme and it provides evidence for the validity of this multidimensional occupational classification. Chapter 5 describes the National Longitudinal Survey data on which this volume is based, including the survey's strengths and weaknesses. Chapter 6 examines to what extent age differences in career outcomes are the result of cohort as well as developmental differences.

The next three chapters describe patterns of career outcomes: the employment status and kinds of work held at different ages (Chapter 7), the occupational aspirations men have at different ages and how similar they are to the jobs men actually hold (Chapter 8), and the extent to which earlier aspirations and jobs determine later jobs held (Chapter 9). The approach taken in this volume is unusual because of its description of careers in multidimensional terms--according to both field and status of work--and because of its emphasis on comparing what men get to what they want. The major questions of these chapters are "What kind of work do men want, do they get it, and how do they react if they do not have the kind of work they prefer?" Racial differences receive careful attention, e.g. "Do black men less often get the kind of work they prefer than do whites?"

The next two chapters explore the determinants of career outcomes--Chapter 10 focusing on family and personal background variables that are associated with entering different fields and levels of work, and Chapter 11 focusing on the influence of educational and economic environments.

The final two chapters review the theoretical and practical implications of the study. Chapter 12 points out how taking account of field of work points to new directions for sociological studies of social stratification. Chapter 13 argues that vocational theorists and counselors must pay more attention to the ways in which social and economic environments limit occupational choices and opportunities. This final chapter also suggests particular fields of work that provide good opportunities for minority men. In short, these final chapters argue that the major psychological and sociological views of career development can be combined to create a more comprehensive model of development-a model that also provides practical assistance to counselors and their clients.

Chapter 2

TWO CAREER DEVELOPMENT MODELS OF THE LAST DECADE

Most career development research of the last decade reflects one of two approaches. The most popular sociological models are referred to as the status attainment models. The psychological models which have generated the most research are referred to here as the congruence or person-job matching models.

This chapter describes each of these approaches. This review demonstrates quite clearly that the two approaches appear to have little in common because they are concerned with different topics and reflect different views of man and work. I then review the reasons I originally pursued an integration of these two disparate approaches. Finally, I present a point by point comparison of what I see as the fundamental assumptions of the two approaches. This exercise shows clearly why the two approaches rarely interact. Fundamental assumptions are dramatically different--though not necessarily inconsistent. Having laid out these basic assumptions, the relation of the two approaches to each other becomes much clearer and ways of integrating the two are suggested.

The two approaches and the basic assumptions are presented in a simplified manner for purposes of illustration. There is no such consensus within either approach and I do not expect that all adherents would accept my characterization. These two descriptions do, however, represent the modal tendencies within each approach.

Status Attainment Models

The status attainment model has been the dominant sociological strategy for studying and understanding occupational inequality in the last decade. This model is sometimes referred to as the study of the socioeconomic life cycle. It originated with the work of Blau and Duncan in 1967, and it is represented by such work as Duncan, Featherman, and Duncan (1972), Sewell and Hauser (1975), Haller and Portes (1973), Alexander, Eckland, and Griffin (1975), Hauser and Featherman (1977) and Sewell, Hauser, and Featherman (1976).

This model is receding in importance as multidimensional views of jobs are being adopted by more sociologists. These will be discussed later. It is useful to examine the general status attainment model even though it may be declining in importance because it has had an enormous influence on the study of careers in sociology and because many of its fundamental assumptions about man and work are being carried over into the new approaches.

Mobility research has traditionally asked how socioeconomic advantage is passed from father to son. The status attainment model examines this question by looking at several stages in the competition for good jobs--hence, the term socioeconomic life cycle. The stages generally are the determination of education, of occupational status, and of income. Social background and ability--such as family wealth and income, parents' education, parents' occupational status, and the individual's intelligence--are the principal resources which are converted into education. People with more resources obtain more education. Background, ability, and schooling experiences, in turn, affect occupational status; the greater these resources are, the higher the occupational status obtained. Finally, all of these background, educational and occupational status characteristics are assumed to influence income.

Some investigators add characteristics such as military service, number of siblings, marital status, and peer influences to the basic model (Blum, 1972; Sewell and Hauser, 1975), but the main idea is that individuals pass through a series of competitions during their lives and doing well in one competition gives a person an advantage in the next competition.

The emphasis in status attainment research is to estimate the relative importance of different variables for outcomes at later stages in the life cycle and to ascertain whether their effects are largely indirect (transmitted or mediated by other variables) or direct. For example, is father's education more important than father's income in determining son's education and is the effect of father's income on son's income transmitted entirely through its effect on son's education or does it exert a direct effect as well? Inferences about the substantive importance of different variables are based on the examination of the significance and size of path or regression coefficients.

Research by Sewell and Hauser (1975) will be discussed to illustrate the status attainment approach and because replications of their research (Alexander, Eckland, and Griffin, 1975) have produced similar results. Their work is based on a sample of two thousand male Wisconsin high school graduates who were studied as seniors in high school and followed up when they were in their late twenties.

Using a basic five-variable model of educational attainment, Sewell and Hauser found that social background (father's education, mother's education, father's occupational status, and family income) and ability together accounted for 28% of the variance in the years of education. (See pages 80-81 in Sewell and Hauser, 1975.) No one variable overshadowed the others in importance. Using a six-variable model of status attainment, they could account for 41%

of the variance in occupational status. Three of the six predictors of status were judged important by the magnitude of their standardized regression coefficients. Aptitude (β = .112) and father's education (β=.058) showed small direct effects[1], but respondent's education (β=.535) had by far the greatest effect on status. Sewell and Hauser were less successful in predicting earnings; using all seven social background, education, and status variables, they accounted for only 8% of the variance in earnings. Occupational status (β=.131) and parent's income (β=.136) were equally important; respondent's education (β=.063) was less important. Sewell and Hauser suggested that earnings may be poorly explained because important variables have been omitted from their model, and they provided a long list of personal characteristics which they plan to investigate: family formation, marital stability, migration, on-the-job training, ethnic identification, religion and size and structure of family of orientation.

Motivation and other social psychological variables have been suggested as determinants of occupational success because they could be expected to mediate the effects of social background and ability upon status and income attainment. Sewell and Hauser added the following such variables to their model: rank in high school, perceived teachers' encouragement to attend college, perceived parents' encouragement to attend college, college plans, occupational status aspirations, and friends' college plans.

---

[1] Researchers using path or regression analysis typically refer to the "effects" of variables although the data do not provide the basis for causal inferences. They have adopted the causal terminology partly for each of exposition. I will follow this usage when discussing their conclusions.

Adding these six motivational and social support variables to the basic model increased the percentage of predictable status variance from 41 to 43%, but contributed nothing to the prediction of income. These variables mediated most of the effects of social background and ability upon status attainment. More explicitly, regression equations for status which incorporated the social psychological variables had much smaller coefficients for background variables than did regressions exluding social psychological variables. On the other hand, the social psychological variables mediated little of the effect of background and ability upon earnings. Sewell and Hauser labelled the direct effects of parental income upon son's income as the direct social inheritance of earnings performance.

Path models differ by race, and these differences are interpreted as differences in the processes by which blacks and whites succeed in the occupational world. For example, Duncan (1969) found that the standardized and unstandardized coefficients from education to occupational status are lower for blacks than for whites. He interpreted these results to mean that a year of education is not as useful for blacks as it is for whites. He also inferred from the results that discrimination prevents blacks from converting their education into occupational success to the same degree that whites are able to convert theirs.

Congruence Models

Vocational psychologists have developed both theories and empirical classifications to study the recruitment of individuals to different types of occupations. The congruence models, often called the matching models, are extensions of the differential or trait-factor tradition in psychology. Strong (1943), Roe (1956), Lofquist and Dawis(1969),and Holland (1973) have been workers in this tradition. This tradition has been devoted primarily to discovering what constitutes a good match between occupations and interests and to measuring vocational interests. The Strong Vocational Interest Blank (Campbell, 1971) and the Vocational Preference Inventory (Holland, 1975) are two interest inventories that have been developed to assess what would be good matches.

Holland's theory of careers is now the most influential of the congruence models, and it rivals developmentally-oriented theories (Super, 1963) for dominance among theories of careers in vocational psychology. Holland's theory has been the most widely-researched of the discipline's theories, perhaps because he provides tools important for research--clear concepts, devices to assess people and jobs, and a classification scheme for organizing information about people and jobs. However, his classification of occupations has only recently been used to describe patterns of employment (see chapters 4 and 7 which present such a description.)

Holland's classification groups occupations according to their resemblance to six ideal types of work: realistic (R), investigative (I), artistic (A), social (S), enterprising (E), and conventional (C), Table 2.1 provides a brief description of these categories. Each type of occupation is characterized by the kind of activities involved, the competencies required and rewarded, and the kind of interpersonal relations prevailing. A realistic occupation, for example, is characterized by demands and opportunities for the concrete manipulation of objects, tools, machines, and animals. In contrast, a social occupation is an environment characterized by demands and opportunities for the manipulation of others to inform,train, develop, cure or enlighten. These six job families are also referred to as fields, types, or categories of work. The term situs also applies, situs being a sociological term for horizontal (as opposed to hierarchical or status) differences among occupations.

Insert Table 2.1 About Here

The theory also postulates that people can be classified according to their resemblance to six personality types: realistic (R), investigative (I), artistic (A), social (S), enterprising (E), and conventional (C). The six types of personality are parallel to the six kinds of work and are also described in Table 2.1 Each personality type has a distinctive pattern of self-perceptions, interests, and competencies, and each shows a preference for different kinds of occupations. For example, those with predominantly realistic personalities perceive themselves as having mechanical ability and lacking ability in personal relations. These people are typically seen as asocial, conforming, frank, practical, stable and unsightful. In contrast, people with predominantly social personalities see themselves as liking to help others, understanding others, and lacking in mechanical or scientific ability. These people are typically seen as friendly, helpful, insightful, responsible and tactful. Skilled trades (realistic occupations) would be preferred by realistic types of people; teaching (social) occupations by social people; and so on.

The classification was empirically developed from data on personality, aptitudes, worker traits, and job duties for people in different occupations (see Chapter 4).

Workers and their jobs can be classified independently. The match or congruence between a worker and the worker's job can be judged because both personalities and job types are described using parallel classifications.

TABLE 2.1

Description of Personality Types and Work Environments

Personality	Work Environment	Sample Occupations	Related Categories
Realistic			
Has mechanical ability and lacks social ability; values concrete things, power, money, status. Is asocial, conforming, frank, materialistic, practical, stable, and uninsightful.	Fosters technical competencies and achievements, and manipulation of objects, machines, or animals; rewards the display of such values as money, power, and possessions. Encourages people to see the world in simple, tangible, and traditional terms.	Mechanical engineer Plumber Auto mechanic Fork lift operator	Manual Skilled trades Mechanical
Investigative			
Has mathematical and scientific ability and lacks leadership ability; values science. Is analytical, cautious, critical, independent, methodical, rational, reserved, and unpopular.	Fosters scientific competencies and achievements, and observation and systematic investigation of phenomena; rewards the display of scientific values. Encourages people to see the world in complex, abstract, independent, and original ways.	Physicist Weather observer Laboratory assistant TV repairperson	Scientific Intellectual

TABLE 2.1 cont.

Artistic			
Has artistic and musical ability; values aesthetic qualities. Is complicated, disorderly, emotional, impulsive, intuitive, non-conforming, and original.	Fosters artistic competencies and achievements, and ambiguous, free or unsystematized work; rewards display of artistic values. Encourages people to see the world in complex, independent, unconventional, and flexible ways.	Editor Decorator Garment designer Fashion model	Aesthetic Cultural Intellectual
Social			
Understands others and has teaching ability; values social and ethical activities and problems. Is cooperative, friendly, helpful, insightful, responsible, tactful, and understanding.	Fosters interpersonal competencies, and informing, training, curing, or enlightening others; rewards the display of social or humanitarian values. Encourages people to see the world in flexible ways.	Minister Elementary teacher Physical therapist Ward attendant	Education Social Service

TABLE 2.1 cont.

Enterprising			
Has leadership and persuasive abilities and lacks scientific ability; values political and economic achievement. Is acquisitive, ambitious, domineering, energetic, optomistic, self-confident, and talkative.	Fosters persuasive and leadership competencies or achievements, and the manipulation of others for personal or organizational goals; rewards the display of enterprising values and goals such as money, power, and status. Encourages people to see the world in terms of power, status, responsibility, and in stereotyped and simple terms.	Lawyer Contractor Automobile dealer Salesperson	Entrepreneurial Business contact Management Sales Political
Conventional			
Has clerical and numerical ability; values business and economic achievement. Is conforming, conscientious, inflexible, inhibited, orderly, practical, self-controlled, and unimaginative.	Fosters conformity and clerical competencies, and explicit manipulation of data, records, or written material; rewards the display of such values as money, dependability, conformity. Encourages people to see the world in conventional, stereotyped, constricted, simple, and dependent ways.	Certified public accountant Secretary Timekeeper Clerk	Clerical Business detail Bureaucratic

The classification organizes occupations into categories that resemble many of the traditional categories in the census and other schemes. For example, realistic work is primarily manual or blue-collar work, and investigative work is primarily scientific work. People in investigative and artistic jobs have sometimes been grouped together and referred to as intellectuals. People in enterprising work are commonly referred to as managers, entrepreneurs, and politicians. The term bureaucratic probably describes many of the conventional jobs such as clerk and accountant. Social essentially refers to education and social service. (The comparability of Holland's typology to other classifications is explored further in Chapter 4.)

A basic assumption of this model, as well as of vocational counseling in general (Williamson, 1964), is that both job satisfaction and job performance depend upon getting a job that matches or is congruent with one's interests and competencies. A person has a congruent job when the personality type matches the environmental type. A person in a congruent job will be reinforced for behavior he or she prefers to perform. The interpersonal relations and opportunities for self-expression coincide with the person's self-image in terms of competencies, preferences, and values. Incongruence is expected to lead to dissatisfaction and change in the person or a change of job. Thus, an investigative person would be assumed to seek, enjoy, and do well in scientific or other investigative work. This person would not be expected to seek training as an accountant (C), marriage counselor (S), or diesel engineer (R). Likewise, environments are expected to recruit and promote persons whose personalities are congruent with the kind of interpersonal relations prevailing there and with the competencies or preferences for the tasks to be done.

A job that is desirable to one worker is not necessarily desirable to another. Likewise, a worker who is good at one job may not be good at another even though the two jobs might require the same level of general ability. Workers are assumed to seek congruent jobs, and employers are assumed to seek and reward employees who match the requirements of the jobs they need done.

Surprisingly, research in the congruence tradition says little about how people actually become employed in different fields of work. The congruence models have been devoted to helping people understand themselves and occupations and helping them to determine which groups of occupations would be most likely to promote their vocational adjustment. Research has therefore focused on understanding the role of pre-employment interests in determining occupational preferences and adjustment. Researchers have seldom tested their theoretical speculations about how social, family, and educational background influence the development of interests and occupational preferences. Neither have they examined the role of opportunities and obstacles in society in determining the success with which people obtain their preferred occupations.

Reviews by Dolliver (1969) and Whitney (1969) imply that many high school and college students do not enter jobs congruent with their interests. Also, Nafziger et al. (1972) found that young whites more often find congruent jobs than do young blacks, indicating that some social groups may experience more difficulty than others in entering the fields of work they prefer.

Income, status, and educational achievement are only a peripheral concern of Holland's theory of careers, although he acknowledges that they are important factors in whether or not individuals are able to enter the occupations they prefer. Job satisfaction and career stability are the outcomes of most concern.

Relating the Two Approaches

I begin this discussion from the point of view of a sociologist, which I am by training. As a fairly typical sociologist studying careers, I was interested in explaining income and status differences between different social groups and how these differences are maintained from generation to generation. At first glance, it would seem that a classification such as Holland's which ignores vertical differences in jobs would tell me little about what I was interested in. His way of classifying jobs might be interesting, but it might really have nothing to do with my main concerns. Having been more or less accidentally exposed to a heavy dose of Holland's theory, however, I had the atypical reaction (for a sociologist) that Holland's horizontal classification did indeed have something to offer to the explanation of income differences. Why did it seem useful? I review my initial reasoning below and describe the research to which it led. That research confirmed to me that a mating of the two approaches was indeed useful. This early research is the precursor and partial rationale for the study reported later in this volume.

Holland's theory and description of personality and job types suggested that income would be higher and determined differently in some fields of work than in others, holding status level of work constant. No such predictions would be made from status attainment theory.

For example, people who resemble different personality types value different occupation rewards (Holland, 1973; Gordon, 1975). Generally, social people value the opportunity to help others more than do enterprising people; in contrast, enterprising people value making money more than do social people. Artistic people more highly value the opportunity to do creative work than do conventional people, who prefer a more structured and remunerative work situation. Investigative people value autonomy more than do realistic or conventional people. Autonomy and the opportunity to do creative or socially useful work are, in fact, non-monetary returns of work which are beginning to receive some attention in sociological and economic studies of income determination (Duncan, 1976). In other words, different personality types prefer different mixes of occupational rewards, income being only one type of reward.

Holland's theory states and empirical data show that many occupations are populated primarily by people with personalities congruent with that type of work. Social environments are populated primarily by social people, enterprising environments by enterprising people, and so on. Therefore, we would expect income differences by field of work, because people with different economic and non-economic aspirations cluster in different types of work.

Income differences may also occur between fields because they are characterized by structurally different occupational achievement systems. The clustering of different personality types in different occupations might lead to the creation of structurally different systems, each with its own institutionalized rules governing occupational success (cf. Kerr, 1954). This could occur in several ways. First, enterprising people dominate enterprising environments, for example, so enterprising values are likely to be informally enforced in those environments. These values are also the ones most likely to be formalized by members of that occupational group. As Durkheim (1893/1964) suggested, different occupational groups may create different moral communities. Second, the incentives most effective for enterprising people are likely to differ from the incentives effective for social, artistic, or investigative people, so employers are likely to have created different reward structures for these different occupational groups. Many jobs in the social category, such as teaching, have fixed salaries with no provision for overtime pay but yet provide non-monetary incentives (for example, community recognition) for long hours and high quality performance. In contrast, many enterprising jobs pay people by commission or according to hours worked, meaning that the more ambitious or persuasive can earn more money. The income prospects of individual workers whose values differ from those of the people dominating that environment may therefore be determined by the way the job is structured by the employers or other employees. Consequently, taking account of differences in personal values may not completely account for the association of field of work with income.

Different kinds of work might be associated with different occupational reward systems for other reasons as well. The different kinds of work require different skills so that resources which bring high returns in one field of work may bring only low income or prestige in other types of work. For example, education may be more highly rewarded in scientific (investigative) or educational (social) work, but experience or specialized aptitudes more highly rewarded in manual (realistic) or artistic work.

There may be many other sources of institutionalized differences in return for the same skills. The point here is that Holland's theory implies that the different fields are different occupational markets. To use an analogy familiar in stratification and mobility literature, they may be different occupational ladders. These ladders may reach to different heights in the occupational world and there may also be different rules for climbing each of them.

I checked this hypothesis by estimating status attainment models separately within the different Holland fields of work. The models were based on 1970 census employment data from 30,000 civilian males aged 21-65 employed fulltime in non-farm occupations. The results are reported in full in L. Gottfredson (1977, 1978b), but can be summarized as follows.

First, the process of income attainment differs by field of work. Income was regressed on years of education, prestige of job, hours worked per week, and weeks worked per year. Regressions were done separately for white men in each of five Holland fields of work. (The artistic category was omitted because of its small sample size.) Tests for homogeneity of regression and inspection of multiple correlations revealed that separate regression equations predicted income substantially better than did one regression equation for men in all fields of work.

Second, education affects income attainment differently in the different fields. Table 2.2 shows the correlations among occupational prestige, years of education, and income for men of different ages in the different fields. The correlations are similar for different age groups, but are different by type of work. Education is highly correlated with prestige and income in investigative work, highly correlated with prestige but only moderately with income in the social jobs, and generally only moderately correlated with prestige or income in the other three fields.

Insert Table 2.2 About Here

Table 2.3 shows that when other correlates of income are also taken into account, differences in the value of education for predicting income still exist by field of work. For example, using unstandardized regression coefficients as an estimate of the contribution of education to income, a

Table 2.2

Correlations among education, income, and occupational status in different Holland fields of work: White men 26-65 employed fulltime

Field of work	Years education and income				Years education and occupational status				Income and occupational status			
Age:	26-35	36-45	46-55	56-65	26-35	36-45	46-55	56-65	26-35	36-45	46-55	56-65
Realistic	.29	.31	.33	.23	.35	.38	.35	.27	.36	.38	.39	.39
Investigative	.33	.54	.59	.52	.73	.77	.75	.76	.37	.63	.65	.59
Social	.09	.22	.35	.28	.68	.73	.67	.74	.10	.22	.29	.31
Enterprising	.28	.39	.36	.35	.42	.39	.39	.34	.24	.33	.29	.31
Conventional	.38	.36	.35	.37	.55	.40	.38	.44	.31	.29	.38	.57

Source. L. Gottfredson (1977).

year of education is associated with about $300, $1000, and $600, respectively, in realistic, enterprising, and conventional work.

Insert Table 2.3 About Here

Table 2.4 shows mean incomes for white men aged 36-65, an age group in which most men can be assumed to have established stable careers (G. Gottfredson, 1977). This table shows the mean incomes for white men in different types of work and with different amounts of education. Mean income increased with education in all categories of work, but for given levels of education men earned much more on the average in some categories of work than in others. Incomes seemed particularly high for men in enterprising work.

Insert Table 2.4 About Here

Table 2.4 also shows that in all but the most highly educated group, white men in enterprising work earned from $2,000 to $4,000 more on the average than did men in the other categories. Only the most highly educated men (presumably college graduates) in investigative work surpassed the men in the enterprising work in income. College graduates in enterprising and investigative work earned on the average from $5,000 to $9,000 more than the college graduates in other types of work.

Table 2.5 shows more dramatically than Tables 2.3 or 2.4 that the monetary value of a higher education differs by type of work. It also shows that the differences are consistent across all age groups. Table 2.5 gives the ratios of group means to the grand mean income for all 27,067 white men in the sample ($10,599). For example, men aged 26-35 with 12 years of education and who were in realistic work earned a mean income of $8,616. The ratio for this group is therefore .81, as shown in the first row of Table 2.5. A ratio of 1.00 means that the mean income of a group of men is equal to the

Table 3

Regressions of income[a] within Holland field for white men employed fulltime:
Regression coefficients (b) for education and status
and multiple correlation coefficients (R^2)

Field of work	Unstandardized regression coefficients (b)								R^2			
	Education[b]				Status[c]							
	26-35	36-45	46-55	56-65	26-35	36-45	46-55	56-65	26-35	36-45	46-55	56-65
Realistic	271	274	326	179	103	126	137	143	.20	.22	.23	.19
Investigative	393	475	649	454	118	309	308	307	.20	.46	.48	.37
Social	102	168	620	246	39	66	47	112	.08	.08	.17	.15
Enterprising	669	986	1062	954	98	204	192	238	.15	.20	.17	.17
Conventional	513	661	611	605	44	97	170	151	.26	.19	.22	.24

Source. L. Gottfredson (1977).

[a] R^2 for income/year regressed on years of education, status (Temme, 1975), hours worked/week, and weeks worked/year.
[b] Scale from 0-18.
[c] Scale from 0-88.

Table 2.4

Mean Income of White Men 36-65: By Education and Field of Work

Field of Work	Years of Education					
	8 or fewer	9-11	12	13-15	16 or more	Total
Real	7,309	8,533	9,325	10,067	14,141	8,674
Inv	7,862	9,372	10,914	12,206	21,946	15,729
Soc	7,301	8,609	9,427	10,464	12,304	10,868
Ent	9,788	11,607	12,599	14,628	20,796	14,623
Conv	7,792	9,154	9,770	10,839	15,360	10,906
Total[a]	7,614	9,169	10,372	12,364	18,123	11,054

[a] Includes men in artistic work.

Source. L. Gottfredson (1978b).

grand mean for all men in the sample.

Insert Table 2.5 About Here

This table shows that men with fewer than 12 years of education earned from .6 to .9 the average for all men, regardless of their age or type of work. The one exception is men in enterprising work. In addition, the ratios for the 26-35 age group are generally below 1.00 unless the men have graduated from college.

The educational level at which a ratio of 1.00 is reached differs by category of work. Looking only at the men aged 36-45, 46-55, and 56-65, men in enterprising work who have 9-11 years of education (and even one of the less educated enterprising groups) have ratios equal to or greater than 1.00. In contrast, the investigative groups reach an average income only with high school graduation, and the groups in the other three categories reach an average income only with one or more years of college. The college graduates in investigative and enterprising work make twice the overall average. In contrast, the college graduates in the social category earn only somewhat more than the average of all men, and no more than high school graduates in enterprising work.

Enterprising jobs are an important segment of the labor market because enterprising workers earn relatively high incomes, and because these jobs constitute a large proportion of all jobs. About one quarter of all white men in the sample were employed in enterprising jobs, and only 25 percent of them had earned college degrees. In contrast, although investigative jobs also pay well, they constituted only seven percent of jobs and half of the workers in these jobs had college degrees.

The third major finding is that racial differences in income may be due

Table 2.5

Ratios of the Mean Incomes of Specific Groups to the Grand Mean for All Men: White Men By Age, Education, and Field of Work

Field of Work	Years of Education					
	≤ 8	9-11	12	13-15	16+	Total
			Ages 26-35			
Real	.63	.72	.81	.88	1.12	.79
Inv	.75	.75	.91	.96	1.29	1.10
Soc	a	.69	.84	.70	.87	.84
Ent	.75	.83	.95	1.08	1.32	1.07
Conv	.59	.61	.74	.81	1.05	.84
Total[b]	.65	.74	.84	.95	1.15	.89
			Ages 36-45			
Real	.70	.82	.89	1.01	1.29	.85
Inv	.71	.92	1.00	1.12	1.98	1.50
Soc	.70	.90	.86	.94	1.07	1.00
Ent	.80	1.05	1.14	1.29	1.87	1.35
Conv	.66	.89	.91	.93	1.40	1.02
Total[b]	.71	.87	.96	1.14	1.63	1.06

Table 2.5--cont.

Type of Work	Years of Education					
	≤ 8	9-11	12	13-15	16+	Total
			Ages 46-55			
Real	.69	.81	.90	.95	1.48	.83
Inv	.72	.86	1.05	1.25	2.19	1.51
Soc	.65	.71	.91	1.04	1.29	1.06
Ent	1.00	1.10	1.24	1.45	2.03	1.42
Conv	.82	.88	.95	1.11	1.55	1.07
Total[b]	.73	.86	1.01	1.22	1.82	1.07
			Ages 56-65			
Real	.68	.78	.82	.81	1.16	.76
Inv	.78	.87	1.08	1.06	2.14	1.39
Soc	.72	.90	.90	.98	1.20	1.02
Ent	.93	1.15	1.19	1.43	2.09	1.35
Conv	.72	.83	.91	1.08	1.40	.97
Total[b]	.71	.87	.96	1.14	1.73	.97

[a] Fewer than 10 cases.

[b] Includes men in artistic work.

Source. L. Gottfredson (1978b).

in part to blacks being found more often in the less remunerative fields of work.

Table 2.6 shows the proportions of men in each kind of work; proportions are calculated separately for different educational levels and for blacks and whites. Half of all white men aged 36-65 were in realistic work, the proportion decreasing as education increases. One quarter of the white men were in enterprising work, this type of work comprising the largest group of workers with at least one year of college and being the second largest among men in general.

Insert Table 2.6 About Here

The distribution of black men is quite different. Only five percent of all blacks were in enterprising work. Whereas almost 20 percent of white men with 9-11 years of education were in enterprising work, less than four percent of similarly educated blacks were in such work. Employment in enterprising work increased with educational level for white men, and 39 percent of the white male college graduates were in this type of work. In contrast, highly educated black men tended to end up in social occupations as opposed to only 19 percent of the whites. As Tables 2.4 and 2.5 indicate, social jobs had the lowest mean income of all types of work.

Other research (Nafziger et al., 1972; Kimball, Sedlacek, and Brooks, 1973) shows that black men aspire to social occupations more often than do white men. This research, together with that just described suggests that some fields of work are either more attractive to blacks or that some fields raise more obstacles than others to the entry of blacks. Furthermore, the lower income returns to fields of work in which blacks are over-represented provides one explanation for why different income attainment models for blacks

Table 2.6

Percentage of Men Aged 36-65 in Each Field of Work: By Race and Educational Level

Field of Work	≤8	9-11	12	13-15	16+	Total
			Whites			
Real	82.0	70.5	55.2	31.8	10.2	53.8
Inv	3.4	3.7	5.1	8.1	20.8	7.4
Art	0.2	0.6	1.4	2.8	4.0	1.6
Soc	1.9	2.7	3.7	5.1	19.2	5.8
Ent	10.6	18.4	27.6	41.8	38.6	25.6
Conv	2.0	4.0	7.0	10.4	7.2	5.8
(N)	(4,040)	(3,892)	(5,951)	(2,239)	(3,164)	(19,286)
			Blacks			
Real	92.0	89.2	72.9	50.0	15.6	81.0
Inv	0.8	0.6	3.8	6.4	12.2	2.3
Art	- -	- -	0.8	2.1	4.4	0.5
Soc	2.2	2.6	6.1	13.8	46.7	6.3
Ent	3.7	3.7	8.0	10.6	12.2	5.4
Conv	1.2	4.0	8.4	17.0	8.9	4.5
(N)	(727)	(351)	(262)	(94)	(90)	(1,524)

Source. L. Gottfredson (1978b).

and whites (Duncan, 1969) have been found useful.

The three major findings reviewed above show that taking account of field of work as it is measured by Holland's typology helps to answer some of the major sociological questions about careers--what determines status and income differences and what determines racial differences in these outcomes. It is important to understand how people get into different fields of work, not only to better understand the satisfaction of their non-monetary interests and values, but also to understand their socioeconomic fate.

I have also tried to show that an integration would be useful for vocational psychology as well. The major demonstration has been that Holland types differ in average status level (L. Gottfredson, 1978a), meaning that field is confounded with level unless the latter is clearly specified. Such confounding can be important when the types are used to predict achievement levels. As we shall also see, some types of work simply do not exist at different levels and so this limits the opportunities of people aspiring to one field or another.

The foregoing paragraphs provided evidence that the two approaches are productive if mated. But, to what extent are they compatible? The following paragraphs explore the constraints on combining the two. Basic purposes and assumptions of the two approaches are listed side by side, illustrating the key points at which they diverge. As noted earlier, the assumptions have been simplified for purpose of illustration and reflect more concensus in the two approaches than is actually the case. But they do reflect the extremes that would have to be reconciled.

There are other approaches to career development such as the segmentation and developmental theories discussed later, but those approaches seem to share most of the basic assumptions of their respective disciplines which are listed below.

Basic Assumptions of the Two Approaches

Assumptions are listed under five headings: the purpose of career research, views of workers, the determinants of career development, the site of intervention when interventions are proposed, and the classification of jobs. Differences between the two approaches are highlighted by underlying key words.

Purpose of Research

A. Stat models: Promote greater social justice in the distribution of job rewards in society.

Cong models: Promote greater satisfaction and fulfillment in career development.

View of Workers

B. Stat models: "Economic man": Workers attempt to maximize or optimize their incomes.

Cong models: "Self-actualizing man": Workers seek personal growth and fulfillment in their own areas of interest and aptitude.

C. Stat models: Level of work is important in determining a worker's standard of living and that of his family.

Cong models: Field of work is important in determining a worker's style of life and that of his family.

D. Stat models: People share the same view about which jobs are most generally desirable, e.g. prestigious.

Cong models: People differ in their views of which jobs would be satisfying for them.

E. Stat models: People search for the highest-status, highest-paying jobs possible.

Cong models: People search for jobs that match their interests and abilities.

Determinants of career development

F. Stat models: Good opportunities are critical.

Cong models: Wise choices are critical.

G. Stat models: Families reinforce ambitions and provide support (e.g. financial, encourage college attendance).

Cong models: Families reinforce different vocational interests and values and they provide role models.

Locus of intervention when proposed

I. Stat models: The "system": Change educational, economic, social and political institutions. (In the 1960's, increased training for needy groups--changing the person--was also proposed).

Cong models: The person: Provide individual counseling.

J. Stat models: Pessimistic: Getting a job is a zero-sum game because people compete for a fixed pool of jobs.

Cong models: Optomistic: Worker adjustment can be promoted by counseling and job redesign.

Classification of jobs

K. Stat models: Single hierarchical scale measuring occupational status (either prestige or socioeconomic level).

Cong models: Horizontal categories of field of work, such as Holland's typology. Fields are more or less similar to one another according to hexagonal arrangements of similarities described by Holland (1973).

L. Stat models: The scheme is evaluative: Some jobs are clearly better than others.

Cong models: The scheme is not evaluative: Some fields are not inherently more desirable than others.

This exercise shows clearly why the two approaches have seldom been used together. They have different assumptions about what is most important to individual workers and so focus on solving different problems. But the assumptions are not necessarily inconsistent; both approaches may be correct to some extent. The challenge is to find out which assumptions are more correct in different settings. For high status people, it may indeed be true that finding a field of work to match their interests may be of great concern so that they be able to do the kind of work they like. If they have good opportunities, the wisdom of their choices may be important. But for people from lower-status backgrounds, income may be the primary concern and opportunities the major determinant of actual job obtained.

In the research to follow, I assume that both approaches may be correct, and I attempt to gauge the relative importance of the assumptions in different circumstances.

Chapter 3

AN INTEGRATED APPROACH TO CAREER DEVELOPMENT

This chapter outlines the theoretical scheme guiding the research in the following chapters. It is a sketch of a theory with many of the propositions and their linkages yet to be filled in. My aim was to include the major dimensions and definitions of the two theoretical approaches discussed in Chapter 2 within a common framework.

The presentation is divided into two sections: (a) the definition and description of career patterns and (b) an examination of the determinants of career outcomes. The research questions to be explored are listed for each. The former deals with what happens to people and the latter with who it happens to and why.

Patterns of Career Development: Where do People End Up?

Definition of Career

Careers are studied here as the histories of the fields and levels of work men have held and the histories of the jobs they have wanted. This definition stresses the sequential nature of a worker's activities over time and allows for the possibility that many workers never settle in any one place for very long during their work lives. This conception is perhaps most unusual for stressing the relation of a person's job to the types of work the person wants over the years.

This concept can be contrasted with the views already discussed. Status attainment research typically treats a career as a single point in time, seldom looking at more than a person's current job and one previous job (usually a very early one). The model does stress the need to study stages of development, but the career stage (as opposed to the education stage) is usually presented as only one point in time as just noted. And, of course, the status attainment approach usually examines only the vertical aspect of occupational outcomes. Aspirations for level of work are examined as potential determinants of careers, but never as descriptors of actual development. The status attainment approach often ignores people's preferences, perhaps because it is assumed they do not differ. Nevertheless, it seems important to ask "What do people want and how many get what they want?" in evaluating career outcomes.

The congruence models are not known for stressing the developmental nature of careers. The related "developmental" models in vocational psychology (e.g. Super, 1957) stress precisely this, though they have no good tools (e.g. classifications of jobs or career patterns) for tracing a person's development. The congruence models, however, suggest the importance of evaluating careers in terms of what jobs a person wants as well as what he actually has because people want different things. Not only is the job itself important (e.g. for income) but a mismatch between job and aspiration has consequences for satisfaction and future job stability.

Figure 3.1 displays the approach taken in this study. It is assumed that early in a person's career, job and aspiration often differ; it is likely they will not be congruent in either field or status level. Over time, however, it is expected that the two will converge; hence, the two are shown moving closer together in Figure 3.1. It is also assumed that one's aspirations may influence what sort of job one gets as well as vice versa. We would also expect some stability of aspirations from one year to the next, as well as some stability of field or level of work actually held. Hence the four arrows shown between aspirations and jobs from one year to the next.

Insert Figure 3.1 About Here

Figure 3.1 is oversimplified in several ways. One of the most important is that it schematizes careers as continuous histories of employment. In actuality many men either become unemployed or leave the labor force altogether (e.g. to attend school fulltime) at some point in their employment histories. This sequence of employment statuses is also one way to characterize careers. Although I will deal with this aspect of career histories, I focus primarily on patterns of jobs and aspirations among employed men.

Questions for Study

Some career development questions can be easily visualized with Figure 3.1.

(1) How stable are field and level of work from one year (or age) to the next?

(2) How stable are field and level of aspirations from one year (or age) to the next?

(3) How well do aspirations and actual jobs match? How big is the gap?

(4) Are the gaps larger for field than for level of work?

(5) Do jobs and aspirations become increasingly similar over one's career?

(6) If they do match, which changes most over time to produce a match--aspiration or job?

(7) How do the field and level of work held by men change with age?

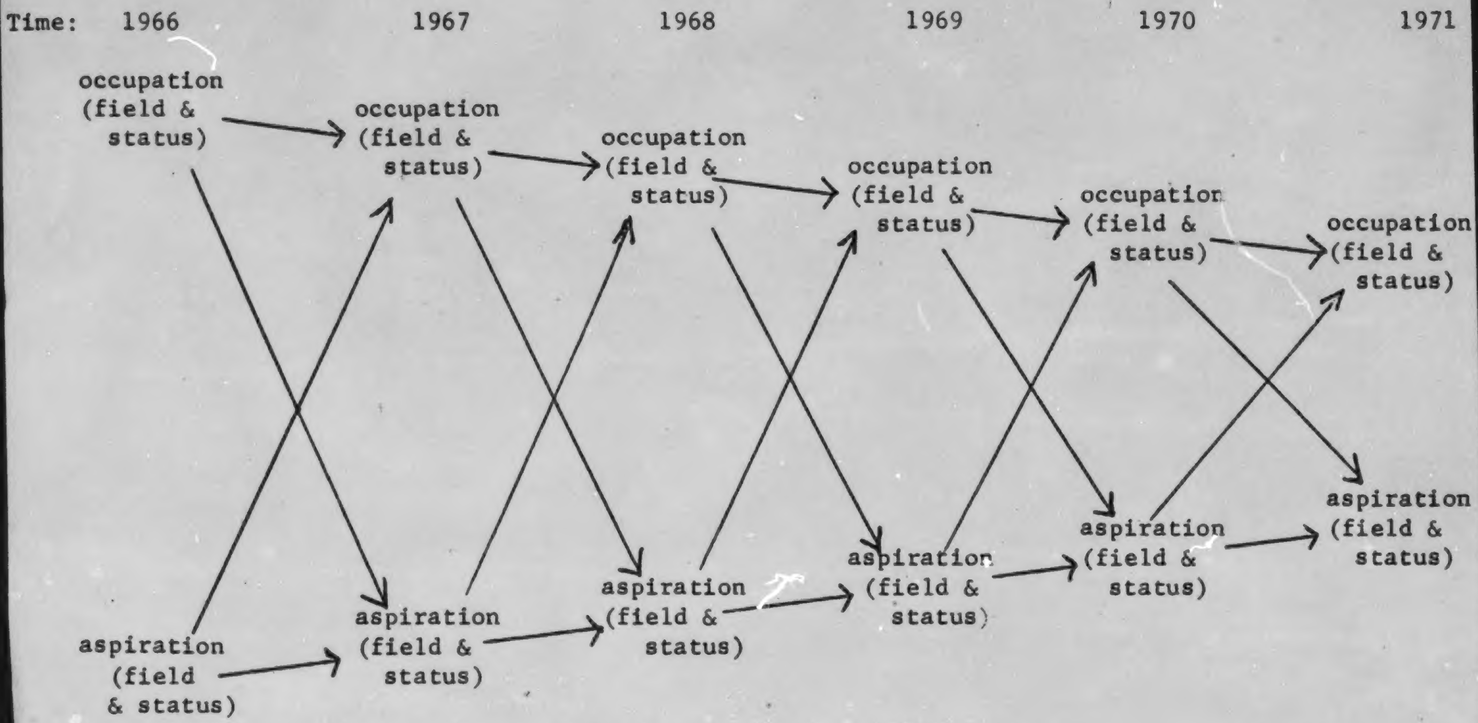
(8) How heterogeneous are the career patterns among men at different ages?

(9) At what age does differentiation or heterogeneity among career outcomes peak and level off?

Job satisfaction and income can also be examined as aspects of career

Figure 3.1

Characterization of a Career


Time: 1966
1967
1968
1969
1970
1971
occupation (field & status)
occupation (field & status)
occupation (field & status)
occupation (field & status)
occupation (field & status)
occupation (field & status)
aspiration (field & status)
aspiration (field & status)
aspiration (field & status)
aspiration (field & status)
aspiration (field & status)
aspiration (field & status)

development. The congruence models assume that satisfaction is influenced by the degree of match between aspirations and actual work, and status attainment research has shown that income is influenced to some extent by one's occupational status. Both satisfaction and income might be seen as secondary aspects of career development in the sense that they result from patterns of jobs held and desired. Although these outcomes will be discussed in this report, the analyses will focus on career development as defined in terms of job and aspiration histories.

Determinants of Career Development: Who Gets What and Why?

The major questions about career development have been about what the determinants are of where one ends up at any particular stage of life. Some of those influences will be examined here. Figure 3.2 presents a rough scheme of influences on career development.

The Sequencing of Determinants and Outcomes

In Figure 3.2 influences on career development are grouped into several sequentially ordered sets. This sequence spans a person's life from birth through the early stages of employment. Variables are listed according to my judgment of when they first become important. Their influence may wax and wane throughout development. Thus when I list a variable at a particular stage of development, I do not mean that it does not operate at other times; it simply means that that is when it becomes important. It may continue to influence development thereafter and its influence may either grow or decline. I have assigned names to the sets of variables to reflect the stages of a person's development. These terms are adapted from Super's (1963) stages.

In this report, I am not able to actually examine development at any age below 14. Nevertheless, this NLS survey does provide data about some of the important influences such as IQ which are important from very early ages. Hence, I am presenting a model for early stages as well as ones that the NLS men were experiencing during the survey years.

Insert Figure 3.2 About Here

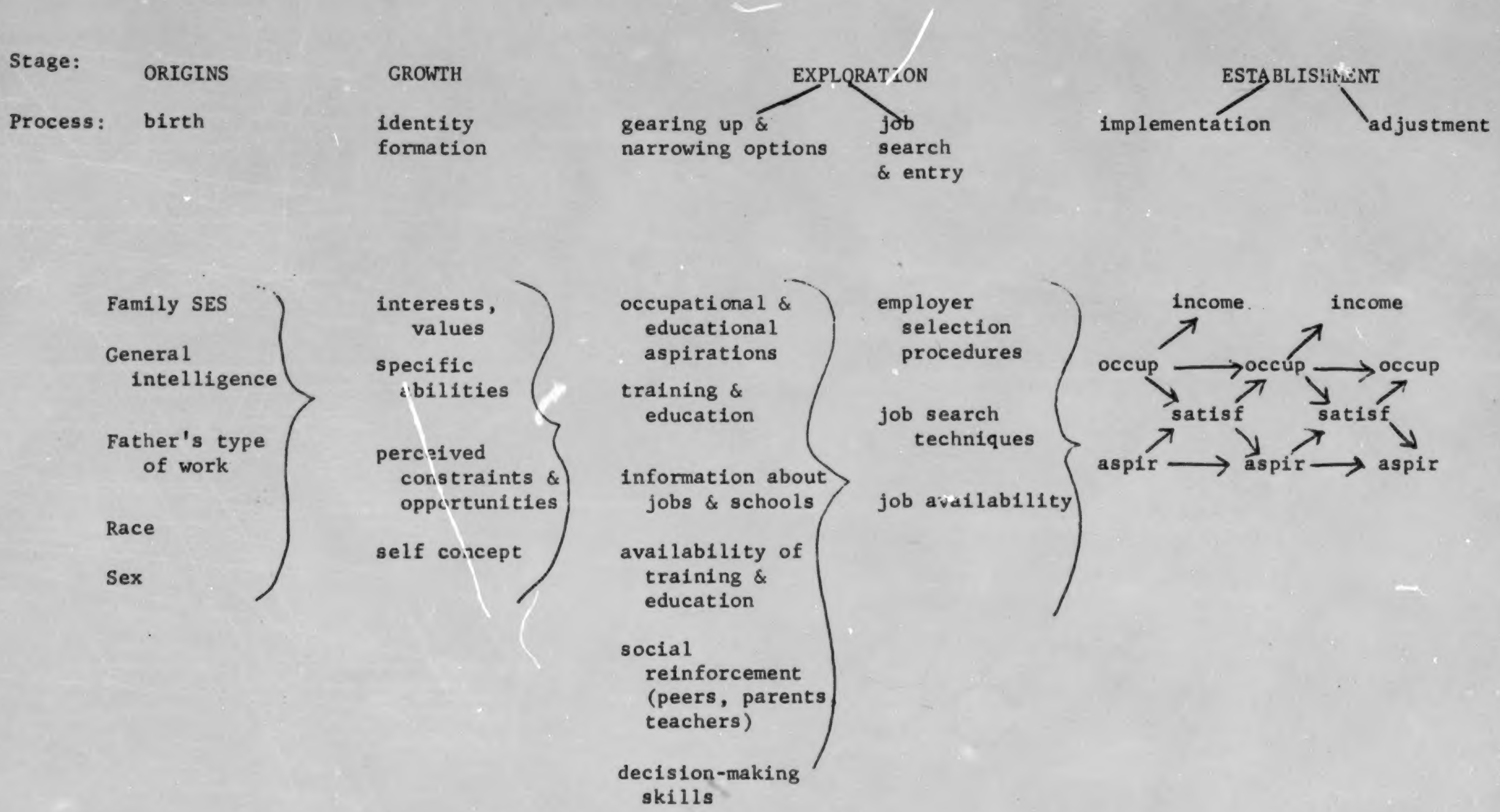
The variables listed as "origins" include family socioeconomic status, father's type of work, IQ, race and sex. A person is born into these circumstances and they change little over the course of one's life. Father's occupation can change, but the careers of older people are quite stable in general.

The early years (e.g. through elementary school) are years of growth and identity formation. Interests and values are developed, as are some specific talents and skills. It is also at this stage of life that youngsters form self-concepts based not only on their interests and abilities, but also on their race, sex and social class. Perceptions of the environment and its opportunities for development also emerge, and youngsters form stereotypes of occupations and who holds them.

During high school, students enter a career exploration phase because they begin to think concretely about the jobs they will obtain. Exploration continues through the actual job search procedure, but it begins with what I refer to as a "narrowing of the options and gearing up" phase. Youngsters continue to narrow their perceptions of who they are, what their interests and abilities are, and what jobs they think they might like to have. They also begin thinking about the education and training that is necessary to obtain those jobs and they proceed to arrange for it. Decision making is not necessarily conscious, consistent, or well-directed. But students are committing themselves whether by design or not, because they are performing well or badly in school and making decisions about what training programs to

Figure 3.2

The Determinants of Career Development


Stage:
ORIGINS
GROWTH
EXPLORATION
ESTABLISHMENT
Process:
birth
identity formation
gearing up & narrowing options
job search & entry
implementation
adjustment
Family SES
General intelligence
Father's type of work
Race
Sex
interests, values
specific abilities
perceived constraints & opportunities
self concept
occupational & educational aspirations
training & education
information about jobs & schools
availability of training & education
social reinforcement (peers, parents, teachers)
decision-making skills
employer selection procedures
job search techniques
job availability
income
income
occup
occup
occup
satisf
satisf
aspir
aspir
aspir

enter, if any. Schools are also making decisions about these students, decisions which affect the opportunities for the youngster to pursue different directions of educational and career development. The environment also provides information to youngsters about their educational and occupational opportunities. The information available to different types of youngsters may vary according to who they know or what they are exposed to, and they may selectively attend to different types of information depending on their own interests and abilities. Social support from parents, teachers, and peers may become particularly important at this transition point.

The second phase of exploration is that of "searching for a job". In all likelihood, this job search process will be repeated a number of times throughout a person's life. The first time it occurs, however, will probably be during or shortly after high school. The job may be part or full time, but the process may be similar. A person's job search techniques come into play here, though it is not clear how important they are relative to the abilities and qualifications one brings to the labor market or compared to the other influences which become operative at the time of job search. The availability of different types and levels of jobs is very important. And employers' preferences for different types of workers (based partly on the demands of the jobs they are trying to fill) and their procedures for selecting employees also affect what happens to the individual.

The establishment phase begins once the person is on the job. I refer to the first part of this period as "implementation" because individuals are trying out their first jobs, testing their skills, testing their preferences against reality, and sizing up their opportunities for future career development. Much of this may be done very haphazardly, with little apparent analysis and planfulness. But once again, the individuals are probably narrowing their options and interests.

Career development after one enters the labor market is shown here as sequences of aspirations, jobs held, job satisfaction, and income. There are, of course, other aspects of career development, but I discuss these most extensively thoughout this report and they include the major outcomes of concern to the two approaches described earlier. I list them as sequences to get across the developmental theory notion that careers are histories of development and not single point in time assessments.

Careers do become increasingly stable with age, and this increasing stability is referred to as the establishment period of "adjustment." This may occur as the different outcomes create some sort of equilibrium. Aspirations may change to match jobs or vice versa, leading to greater satisfaction and less inclination to change later. People may adjust to the level of income a job provides and become less inclined to change jobs. Alternatively, the effort to build seniority and greater income may make workers reluctant to change jobs.

Types of Determinants: Variables and Definitions

The foregoing influences upon career development can be categorized into 5 broad areas: personality, family, environment, skills, and race/sex.

In the following paragraphs, I point out which variables I am able to measure. I also discuss how important each of the variables is within the status attainment and congruence approaches to career development.

Personality. The two approaches perhaps have the biggest disagreements about the importance of personality. This stems from their respective conceptualizations and measures of personality. I might also add that theorists in the two approaches might not necessarily refer to the following variables as personality variables. Within the status attainment tradition, "personality" has been measured by need-for-achievement. Writers such as Featherman (1972) are willing to discard personality as important in career attainment because need-achievement does not help to predict actual status attained. However, the social psychological status attainment models (Sewell & Hauser, 1975; Kerckhoff & Campbell, 1977) do incorporate personality variables to some extent because they examine the importance of ambition, usually measured as level of occupational or educational goals.

Vocational psychologists, in contrast, place greater weight on the effects of personality though it is primarily Holland who phrases his discussion in terms of personality. Vocational interests and values have received particular attention and a number of inventories exist to measure them. One's interests and values have been shown to be related to the occupational choices people make (e.g. Holland 1973).

Developmental theories stress the notion of self-concept, which is a person's assessment or beliefs of who he is, what he is like and how he is the same or different than other people. This is somewhat akin to Holland's notion of personality, except that Holland stresses personality as what the person actually expresses in the way of vocational interests, values, and preferences.

Figure 3.2 includes several personality variables. They are: interests and values, self-concept (beliefs about oneself), and occupational aspirations for type and level of work. In the research, I actually examine personality only as it is expressed in vocational aspirations and educational goals.

Family. Both approaches stress that families are important, but for different reasons. The transmission of social class from one generation to the next has been a traditional concern within sociology in general and it is a central question in status attainment research. In the status attainment research, families do at least two things: they provide monetary and intellectual advantages which aid the child in obtaining a good education and possibly later occupational opportunities as well, and they provide encouragement to strive for more education. Family, or family background as it is most often referred to, is operationalized most commonly in terms of parents' level of education, father's occupational status, and "parental encouragement" during the high school years. It is not clear how the family exerts its influence on the career attainments of its children in this view, but it is usually conceived as a social class process--most commonly perhaps the direct or indirect transmission of socioeconomic advantage. Models typically find that the "effects" of family social class upon status attainment are mediated by other influences such as educational attainment, but it does seem to have a direct effect on income (Sewell & Hauser, 1975). In short, family socioeconomic status does seem to be important, though how it has its effect is far from being satisfactorily explained. The major effects of families in the congruence approach are different. Families stimulate and reinforce particular patterns of interests and values. Parents are also role models for their children,this being particularly important for maintaining sex differences in vocational behavior.

Figure 3.2 incorporates family variables in three ways: family SES (socioeconomic status), father's field of work, and parental encouragement. Family SES is operationalized here as parent's education and father's occupational status. This is consistent with the status attainment tradition. Both SES and father's field of work are proxies for some unspecified influences, such as parental values or interests which are transmitted to the child, child rearing practices, monetary advantages, and so on. Ideally, these latter variables should be directly measured so that we know why SES or father's field of work is important. The third variable, parental encouragement, is part of a nexus of social reinforcement variables which include reinforcement by peers, teachers, parents, and various significant others in the life of a child. The term itself, parental encouragement, comes from the status attainment literature. I include mother's education and father's education, occupational status, and field of work in the research to follow.

Skills. Both approaches identify skills, abilities, training, and education as very important in determining career development. Sociologists are more apt to question whether the education, training or abilities are really job-related. Status attainment researchers, along with many other social scientists, have spent much effort calculating how important education is for determining occupational status and income; there are hundreds of books and articles on the topic. Years of education explains later occupational status better than does any other variable, though estimates of its importance depend on the theoretical model used. Ability is usually measured in this approach simply by IQ or a similar scale of academic ability. IQ has been found important, but it is less so than education and much of its effect is mediated through educational attainment.

Congruence models are more apt to stress the diverse nature of talents. They assume that general ability and educational level are important in determining career choice and success, but they also stress variations in kinds of talents rather than general levels of talent required in different jobs. Hence, they stress matching people and jobs. Research in this tradition does not estimate the economic or status returns to ability or education as does the status attainment approach. Instead, it has focused on identifying the skills possessed by incumbents of different jobs and it refers to the job analysis literature which estimates the skills required by different jobs.

One final skill not stressed by either approach is that of job search techniques. Wegmann (1979) has reviewed evidence that job search skills can be taught and do make a difference in finding jobs.

Figure 3.2 includes several types of skills or qualifications: general intelligence (IQ), specific abilities, years of education, vocational training and job search skills. Of course, many specific types of skills and education can be identified and may be differentially important; Figure 3.2 presents only a simplified characterization of these influences. IQ, years of education, and a history of vocational training and being in a college-preparatory curriculum are the skill-related variables used in the research reported later.

Environment. This includes the social and economic environments a person faces (except for the family which has already been discussed). I have already mentioned one aspect of the social environment, the social reinforcement a person receives from significant others for particular beliefs, goals, interests and courses of action. The environment also makes available information, information about what training is available, what jobs are like and so on. It also determines education and training opportunities. These opportunities are determined for the individual by the number of openings and the selection procedures used to place people in those openings. Somewhat analogously, the environment determines the job opportunities available to a person. Job availability is more tightly restricted than are education and training opportunities, and it is determined in large part by economic conditions and patterns of production . Employer preferences and selection procedures for hiring and promoting workers also act as strong influences on career development. These together are often referred to as the "system" or the "social structure". The individual may be skilled, but it is only through interaction with schools, employers, and other important factors in the environment that these skills can be bartered for a job and wage. Neither approach has directly studied the environments affecting job availability or hiring, though the status attainment approach does make inferences about employer preferences from patterns of who is hired for what job.

One important aspect of the environment--as of the individual-- is that it changes over time. Environmental determinants are indeed variables over time. Economic conditions change, employers change their practices, and the nature of work itself evolves over time. This fact complicates the study of career development because not only do individuals change over their lives even in stable environments, but the environments in which they are developing are also changing.

This report, too, does not directly examine the social and economic environments of the men studied. Bases for inference about the environment are clearly described where relevant. For example, aspirations can be considered barometers of the opportunities people perceive in their environment. An effort is also made to measure the extent to which career changes are related to changes in the environment rather than to maturational processes.

Race and Sex. Race and sex have been clearly shown to be related to differences in career development. To some extent, they may reflect the other variables already mentioned: ability, personality, treatment by the environment and family. But it is not clear exactly why race and sex make such a big difference, so they are singled out here. I do not examine sex differences in the following research because the sample consists entirely of men, but I do devote considerable attention to differences between blacks and whites (other groups in the sample are too small to examine).

Basic Assumptions.

If we review again the basic assumptions about men and their work listed in Chapter 2, we see that one of the main differences between the two approaches is that they have different views of the relative importance of the various determinants of career development. Status attainment research stresses the influences beyond a person's control that limit opportunities and congruence models stress the choices that people make. In the integrated model, I included both opportunities and choices as potentially important career determinants, and in the research I try to tease out how important they each are. Similarly, I do not assume that people are concerned primarily with level of work or with field of work, but I try to determine which is more important under different circumstances.

The testing of assumptions can only be indirect here. People are not asked which is more important--field or level of work. But we can observe what they do under different circumstances and see, for example, whether field or level is more stable. Opportunity cannot be measured directly, but we can examine variables such as family socioeconomic status and race which are presumed to affect opportunities and we can see to what extent choices are fulfilled in different circumstances.

Questions for Study

Questions such as the following are raised by the model and are investigated in later chapters.

(1) How important are family and personal characteristics (such as family

social class and IQ) in determining one's aspirations and attainments--both for field and level of work?

(2) How do the links between family background and attainment develop and at what ages do they become evident?

(3) Are different personal characteristics or experiences required to enter different fields of work?

(4) To what extent do changes in the social and economic environment induce changes in patterns of career development from one birth cohort to the next?

(5) Did blacks and whites experience different environmental changes during the late 1960's and how did these changes alter racial differences in career patterns?

Chapter 4

CLASSIFYING OCCUPATIONS: A STATUS-FIELD SCHEME

Career development is described in this volume in terms of a multidimensional classification of occupations. A classificatory scheme which incorporates both vertical and horizontal dimensions of jobs is presumed to better describe career development than does either one of the dimensions alone, but there are diverse options for creating a multidimensional scheme. As noted before, the option chosen here is to classify occupations according to level of work using a measure of status,usually Duncan's (1961) socioeconomic index, and according to type of work using Holland's (1973) typology.

This chapter describes in detail the multidimensional scheme used, hereafter referred to as the status-field scheme. A detailed description is advisable because this status-field scheme is basic to all the results to follow. If we do not know clearly what the classification scheme means and how valid it is, we are not likely to learn much from the results using it. I begin by describing the two components of the scheme separately and then by describing the properties of the scheme using both components simultaneously. For each, I review the history of its development, evidence for its construction validity, and its comparability to similar scales.

Occupational Status: The Duncan and Temme Scales

History and development

Sociologists have historically been interested in the study of social strata--how they are created and maintained, how they change, and how people move among them. Many criteria for defining social strata have been discussed, including wealth, income, education, prestige and political power. Occupation has been by far the most common way of defining social strata. The major theoretical reason given is that a man's occupation is probably the most important determinant of his social position and that of his family. A more practical reason is that occupational data are more readily available than anything else about a person.

Much effort has been devoted to measuring social strata via occupation in the last century, but it has not been confined to sociologists. As Scoville (1965-66, p.71) notes, the most prominent occupational classifications developed or proposed for government statistics were "attempts to uncover the great strata of society." Scoville's review of the early efforts to develop occupational classifications clearly illustrates this (e.g., see Hunt, 1897; Wright, 1899). The most influential work was conducted by Edwards (1911, 1917, 1933, 1943), his "social-economic groups" becoming the major framework for the U.S. census classification from 1940 to the present day (professional, managerial, sales, clerical, crafts, operatives, laborers, service,and farm). Versions of Edwards' scale (e.g. white collar, blue collar, vs. farm) have been widely used in the study of social mobility. Edwards' scheme was designed as a vertical scale, though it has occasionally been used as a horizontal scheme or without any assumptions about whether it is vertical or not. For example, Klatsky and Hodge (1971) and Blau and Duncan (1967) treated the census categories as nominal groups and then examined mobility among them. It is interesting to note in this regard that these two studies concluded that mobility between occupational groups is primarily along a vertical dimension. This is hardly a surprising finding, however. Edwards intended that the groups array occupations by "social-economic" level, and movement among them could be expected to largely reflect that scale.

The Edwards' categories form a crude socioeconomic ordering of very heterogenous occupational groups. Within the last few decades much more precise scales of occupational status have been developed. Two general characterizations of occupations by status level have been developed: scales measuring socioeconomic status and scales measuring prestige. The socioeconomic approach simply means that occupations are ranked according to some combination of education and income or other objective characteristics of occupations or of their incumbents. The prestige approach has involved asking people about the "general standing" or general desirability of different occupations. As we shall see, the two approaches produce nearly identical results for most purposes, but I distinguish between the two here because there has been debate about the relative merits of each within the sociological literature.

Sociologists cite the earliest prestige studies (Counts, 1925) as the origins of the status scales they most commonly use now. Reiss (1961) reviewed the history of the early prestige studies, describing in detail the 1947 NORC North-Hatt study which is the immediate precursor of the scales currently popular with sociologists.

The North-Hatt study was designed to overcome problems of respondent selection, adequacy, or representativeness of the list of occupations, procedures for eliciting responses and the representativeness of the populations of raters that had characterized earlier studies attempting to measure the social standing of different occupations. This study asked a nationally representative sample of 2920 people to rate 90 occupations according to whether they had excellent, good, average, somewhat below average, or poor social standing.

These percentages have been transformed in a number of ways to produce prestige scores by which one can rank the occupations, but the main problem with the study is that it provides scores for only 90 occupations.

The next major advance was made by Duncan (1961). Duncan's contribution was to produce status scores for all the several hundred occupational titles used by the Census Bureau. He reasoned that direct ratings of all occupations would be both expensive and not feasible. The principle reason they would not be feasible is that people can only adequately rate occupations with which they are familiar, and people are not familiar with most occupations. For example, many people were not familiar with half of the 90 occupations in the North-Hatt study (as evidenced by the number of "don't know" responses). Duncan developed scores for all occupations by estimating them from income and education data for individual occupations. He took the 45 North-Hatt occupations with low percentages of "don't know" answers and which could be well matched with census titles, and (using multiple regression) regressed the percent of responses which were "excellent" or "good" on income (i.e., percent of workers with incomes of $3500 or more) and education (i.e., percent of workers with a high school education or better). The resulting regression equation accounted for 83% of the variance in prestige rating (percent "excellent" or "good" responses) for the 45 occupations. He then used that regression equation to predict percentages for the remaining several hundred occupational titles.

Duncan's scale is referred to as a socioeconomic scale rather than a prestige scale (e.g., see Hauser & Featherman, 1977) because it was created using economic and educational data. It is obvious, though, that it is ultimately based on prestige ratings. And as will be pointed out later, evidence which is cited as supporting the validity of Duncan's SEI scale is actually evidence about the validity of the prestige ratings upon which Duncan's scale is based.

There are several prestige scales. Siegel (1971) has constructed a prestige scale for all 1960 census titles. His method was to attempt to collect prestige ratings for all occupational titles. Scores for some occupations were obtained from several other prestige surveys, and some were collected in new surveys (see Hodge, Siegel & Rossi, 1966). Scores from these different sources were transformed to a common metric and scores for missing titles were estimated (see Temme, 1975, for a critique of Siegel's method). Treiman (1977) has developed a standard international occupational prestige scale. And most recently, Temme (1975) has developed a prestige scale for the 1960 and 1970 census titles. His method was similar to that of Duncan, except that he used prestige ratings for approximately 200 occupational titles (compared to Duncan's 45), and he used job characteristics such as involvement with data, people, and things in addition to measures of education and income for estimating scores for the remaining occupations.

There is some debate in the sociological literature about whether a socioeconomic or a prestige scale is more appropriate (see Hauser & Featherman, 1977). The issue is whether social stratification has a factual or "functional" basis or whether it is based on social values, that is, whether the major hierarchical dimension in society is based on socioeconomic or other "objective" distinctions or whether it is based on subjective evaluations and cultural values (Gusfield & Schwartz, 1963). If the major dimension is socioeconomic, then scales measuring socioeconomic status are cited as best for mobility research; if it is based on cultural values, then scales measuring occupational prestige are supposedly more appropriate. Although the two types of scales may be conceptually distinct, they amount to much the same thing in practical terms. And neither should this be surprising; they both are based ultimately on the same ratings by the general public of the prestige of occupations. Hauser and Featherman (1977, p.29-30) show that the different scales are usually correlated .85 to .90. My own work (L. Gottfredson, in press) examining the correlates of Temme's prestige scale suggests that there is a general status level dimension to jobs. For example, Table 4.1 suggests that prestige and general educational development (GED) level reflect the same level dimension (r=.95) and self-direction, involvement with data, and specific vocational preparation are closely related to that dimension.

Insert Table 4.1 About Here

Prestige or socioeconomic scales serve my purpose equally well and I treat them as essentially the same scale. This report summarizes work with two scales; Duncan's SEI was used when studying the NLS sample and Temme's prestige scale was used in connection with census data.

There is one difference between prestige and socioeconomic scales which should be mentioned, however. While most occupations are ranked in a similar way in both types of scales, there are a few glaring exceptions. Farmers are ranked near managers in the prestige scales but near operatives and service workers in the Duncan SEI. Clergymen are also ranked much lower in the SEI than the prestige scales. See Hauser and Featherman (1977) and Duncan (1961) for relevant discussion.

Validity

The evidence most often advanced for the validity of the status scales is that there is a remarkable consensus over time and social groups in prestige ratings. Reiss (1961) found that ratings did not vary by sex, age, region,

Table 4.1

Correlations Among Selected Occupational Characteristics

(N = 437 Occupations)

	People	Things	SVP	Self-direction	GED	Status	Mean	Standard deviation
Data	.48	-.16	.81	.84	.85	.80	3.4	2.2
People		-.57	.46	.80	.61	.58	6.3	2.1
Things			.09	-.52	-.19	-.20	5.5	2.6
SVP				.74	.86	.84	5.7	1.7
Self-direction					.90	.85	11.6	7.3
GED						.95	3.9	1.1
Status							43.0	16.8

Note. A high score on data, people, or things indicates low involvement, so the signs of the correlations of these three variables with the other four variables have been reversed to aid interpretation.

Source. L. Gottfredson (in press).

residence, education, and occupation of individual raters in the North-Hatt survey. There is also little variance in ratings attributable to different instructions to raters to rank according to social standing, to honor, to intelligence required (Hodge, Siegel, and Rossi, 1966; Siegel, 1971; Duncan, Featherman and Duncan, 1972). People differ in why they rate occupations high or low, but they agree about which ones are ranked high or low. Neither do prestige rankings seem to vary much over time or country. Hodge, Siegel and Rossi (1966) compared rankings from studies in the U.S. in 1925, 1940, 1947 and 1963 and found that the correlations ranged from .93 to .99. In a study of 23 developed and underdeveloped countries, Hodge, Treiman, and Rossi (1966) found that correlations between prestige rankings in the U.S. versus other countries ranged from .79 to .97 with the average being .91 (the number of occupations rated ranged from 7 to 35). As noted above, this validity evidence relates specifically to prestige ratings. Because socioeconomic scales such as Duncan's are based on these scores, this is also presumptive evidence for those scales as well.

If we conceive of occupational status as the general desirability of an occupation, then the evidence seems to provide considerable support for the validity of the scales. They are highly correlated with the income and education of incumbents and with other measures of what we might consider objective indicators of the well-being of incumbents or the rewards that occupations provide. For example, Duncan (1961) showed that his SEI scale correlated .84 and .85 with his income and education variables for occupations. If we examine other judgments about occupations, we see that ratings of prestige are also associated with judgments about the importance of the occupations to society. Respondents in the North-Hatt study (Reiss, 1961: p.32-33) were asked to state their major reason for assigning a high or low social standing to occupations. No one reason predominated, but the major ones were "pays well" (18%), "service to humanity or essential" (16%), "social prestige" (14%), and "education, hard work, and money" (14%). When 21 respondents were asked to rate 90 occupations according to responsibility, training-education-skill, and autonomy as well as prestige, Simpson and Simpson (1960) found that these dimensions were correlated, respectively, .93, .95 and .81 with prestige.

Gusfield and Schwartz (1963) examined judgments of occupations using semantic differential techniques. They found that prestige rankings were correlated most highly with dirty-clean(-.74), passive-active (-.70), successful-unsuccessful (.92), middle class-working class (.93), Democrat-Republican (-.83), poor-rich (-.74), insecure-secure (-.80), useful-useless (.60), sober-drunk (.74) and Negro-White (-.62).

I have seen only one type of negative evidence for the validity of a status scale. Hatt (1950) and later Reiss (1961) concluded that the North-Hatt prestige scores do not yield a unidimensional scale for all occupations. Both found that occupations scale better when separated into the eight situs groups proposed by Hatt. Reiss concluded that "both the variation in individual ratings for any occupation and the failure to aehieve a unidimensional scale appear to be due to systematic variation in ratings among subgroups of the American population as well as to error. Theoretically, it does not seem reasonable to expect occupations to be ordered unidimensionally on a prestige scale since subgroups value different things. Both income and education have some independent variance in explaining the prestige ordering of occupations. There may be other factors as well" (p.108). I have not seen any other studies examining this issue, nor even any citing this negative evidence. My own view is that Reiss is undoubtedly correct. And keeping this caution in mind helps to explain some otherwise unusual results which will not be discussed. But for my purposes here, the general status dimension is adequate, particularly because I use it together with a situs (horizontal) classification of occupations.

Occupational Field: The Holland Typology

History and Development

Holland's typology has its roots in differential psychology, the study of individual differences. While working in the army processing personnel data as well as in educational and psychiatric settings, Holland concluded that people could probably be classified into a small number of types according to their interests and behavior (Holland, 1973; Weinrach, 1980). He later developed this notion into a theory of personality and careers, of which his six-category typology is an integral part. The theory and its typology were designed primarily for, and have been used primarily in, understanding and treating problems of vocational choice and adjustment. They are part of a tradition in counseling psychology that was initiated by Parsons (1909), the tradition often referred to as the trait-factor approach. A fundamental principle of that tradition is that both people and jobs differ in systematic ways, and that promoting a good match between people and their jobs promotes satisfaction and achievement. The problem in that tradition was, therefore, to develop ways of assessing both people and jobs. The focus has been on assessing people's interests in different fields of work and on discovering which interests, values and competencies are reinforced in different occupations.

Strong (1943) was one of the first to develop devices to assess the vocational interests of individuals. His inventory, the Strong Vocational

Interest Blank--revised now as the Strong-Campbell Interest Inventory (Campbell, 1971)--has been in widespread use for decades. Holland's typology of people and jobs is similar to Strong's work in that it is based on an assessment of people's interests, and people are classified according to their similarity to incumbents in different fields. This is an important point because, as will be discussed later, it raises questions about the validity of the typology for describing jobs rather than people.

Holland's typology is applied in parallel fashion to classify people into personality types and occupations into fields of work. This is a unique feature of Holland's work within the trait-factor tradition. There are a variety of ways of assessing people's vocational interests, and there are methods of classifying jobs into groups, but Holland's is the only scheme that provides a parallel way of assessing both. Because a basic aim in this tradition is to promote a good match between people and jobs, a method for easily judging degree of match is a definitive advantage.

The six categories, realistic, investigative, artistic, social, enterprising and conventional, were developed in an iterative process alternating a priori theoretical notions of the types and factor analyses of vocational interests, and then comparing the results to other factor analyses of personality to see if the types made sense and were consistent with other studies of personality types. The basic tools for classifying people according to the personality typology have been Holland's two major personality assessments, the Vocational Preference Inventory (1975) and the later Self-Directed Search (1979). These devices assess the vocational interests of individuals and assign a personality type to them.

The classification of occupations, that is, the assignment of individual occupations to the different categories, has also been accomplished in an iterative evolutionary procedure. Occupations have been classified into one type or another depending on the personality types of incumbents in those occupations. For example, if most people in teaching turn out to be social types according to the personality assessments, that occupation is classified into the social occupation category. The process is judgmental when relevant data are limited, and changes are made when additional information suggests that the original assignment was incorrect. Approximately 400 occupations have been classified in this way and are listed in the Occupations Finder (1977) which accompanies the SDS. The relation of occupational codes assigned in this way was then compared with Dictionary of Occupational Titles (U.S. Department of Labor, 1965) information about level of involvement with data, people and things (Viernstein, 1972). On the basis of this information, a translation procedure was developed for assigning all previously unassigned occupational titles to categories in the typology.

Because much information about jobs is collected in terms of census categories, occupational titles in the 1960 and 1970 census classificatory schemes have been assigned Holland codes. This procedure is described in detail in L. Gottfredson and Brown (1978), but consists basically of assigning codes on the basis on the Occupations Finder whenever possible, and secondarily, using Viernstein's translation. Holland codes for the occupational titles used in this study were taken were taken from L. Gottfredson and Brown (1978) and are provided in Appendix A. Because Holland periodically revises his assignment of codes to individual titles, it is good to note that the codes used here are consistent with the 1977 version of the Occupations Finder and differ in a few instances from the older list of codes provided in his 1973 book.

Holland provides three-letter codes for occupations. The first letter of the code indicates the theoretical type of work the occupation most closely resembles; the second letter of the code indicates the type of work the occupation next most resembles; and the third code indicates the type of work the occupation third most resembles. This report uses only the first-letter codes. L. Gottfredson and Brown (1978) list the three-letter codes for all census titles; Appendix A lists only the first-letter codes.

Lists of Holland codes generally include some measure of occupational level. Holland's Occupations Finder includes the general educational development (GED) level of each occupation. GED is the general level of reasoning, mathematical and language development estimated to be required in different occupations. L. Gottfredson and Brown's list of codes for the census categories includes GED as well as Temme's measure of occupational prestige. Few researchers using Holland's typology have categorized occupations with any measure of level of work.

Horizontal classifications of occupations have also been suggested in sociology, but little effort has gone into developing any. Sorokin (1959) suggested studying mobility along a horizontal as well as a vertical dimension. Benoit-Smullyan (1944) suggested this also, and identified several types of horizontal dimensions--locus (function of work) and situs (social group membership). Morris and Murphy (1959), Horan (1974) and Hogan (1977) have been among the few sociologists who have examined situs mobility. Hatt's (1950) situs classification is particularly interesting because he empirically developed it from Guttman scaling of prestige ratings when he found that the prestige scores did not form a unidimensional scale. Hatt proposed eight situses--political, professional, business, recreation and aesthetics, agriculture, manual work, military,and service. There is some resemblance between these eight categories and Holland's typology, but not a lot. All of the foregoing reflect efforts to tease out horizontal dimensions from vertical ones. Other less analytical characterizations of occupational groups within sociology also reflect horizontal distinctions among occupations, some of which resemble Holland's categories. (Some of these are listed in Table 2.1.) For example, Bottomore's (1964) competing elite occupational groups of bureaucrats, intellectuals, and managers are similar to, respectively, the higher levels of social jobs, investigative and artistic work, and the higher levels of enterprising work. Sociologists have proposed other ways of classifying jobs, but they are not discussed in terms of horizontal versus vertical distinctions, so I will discuss them later.

Validity

Holland assigns occupations to the typology's categories on the basis of the personality types of occupational incumbents. This procedure is based on the following assumptions. "Each environment is dominated by a given type of personality...Because different types have different interests, competencies, and dispositions, they tend to surround themselves with special people and materials and to seek out problems that are congruent with their interests, competencies and outlook on the world. Thus, where people congregate, they create an environment that reflects the types they are, and it becomes possible to assess the environment in the same terms as we assess people individually " (Holland, 1973,p.3). Thus, evidence for the validity of the personality types is indirect evidence for the validity of the occupational types. Until recently, evidence for the validity of the occupational types has consisted almost entirely of this type of evidence, and it is briefly described below. Direct evidence of the validity of the occupational types based on occupational data is more persuasive, however, it is reviewed in more detail.

Most research with Holland's typology has involved the personality types rather than the occupational types. Holland (1973; Holland, Magoon, & Spokane, in press), Walsh (1973), and Osipow (1973) review the theory and typology. Lackey (1975) and Holland, Gottfredson and Holland (1977) provide bibliographies of several hundred recent studies testing the validity of the theory and classification. While the evidence reviewed does not support all constructs in Holland's theory equally well, the personality types receive considerable support.

The meaning of the categories for describing people in terms of their vocational interests, competencies and values has been established in large part by comparing Holland's personality assessment devices (the SDS and VPI) to other assessments of interests, temperaments, values and abilities including the Strong Vocational Interest Blank, the General Aptitude Test Battery, the Armed Forces Vocational Aptitude Battery, Kuder's interest inventories, the Adjective Check list, the California Personality Inventory and other devices (Breme & Cockreil, 1975; Campbell, 1971; Cole, 1973; Holland, 1968, 1973, 1977; Holland & Nafziger, 1975; Kelso, Holland & Gottfredson, 1977; Nafziger & Helms, 1972; Wakefield & Cunningham, 1975; Westbrook, 1975).

Holland's personality types appear to be consistent with other assessments of the dimensions of personality. For example, Gordon (1975, p.86) concludes that Holland's six types "bear a striking resemblance" to the five factors emanating from the Survey of Interpersonal Values: control of others (enterprising), service to others (social), self-determination (investigative), institutional restraint (conventional, realistic), and self-expression (artistic).

The six types also correspond closely to the major factors of interests and personality traits obtained by Guilford et al. (1954) through factor analysis: mechanical, scientific, esthetic, social welfare, business,and clerical. Holland (1973, p.6) also reports that the types "are analogous in some ways" to the types proposed earlier by Adler (1939), Fromm (1947), Jung (1933), Sheldon (1954), Spranger (1928), and others.

Far less work has been done directly assessing the validity of the typology for describing occupations, which is of most concern here. Several investigators have compared Holland's typology with other schemes for describing and classifying occupations and generally found differences which would be expected according to the theory and description of occupational types. Viernstein (1972) and L. Gottfredson (in press) provided evidence that Holland's six major categories of work require different levels of involvement with data, people, and things (U.S. Department of Labor, 1965). Holland, Viernstein, Kuo, Karweit, and Blum (1972) compared five categories of work and found mean differences in Position Analysis Questionnaire (McCormick, Jeanneret & Mecham, 1972) factor scores. The PAQ is an assessment of job tasks, requirements and working conditions. Toenjes and Borgen (1974), Rounds, Shubsachs, Dawis and Lofquist (1978) and L. Gottfredson (in press)--using essentially the same data on occupational reinforcer patterns from the Minnesota Work Adjustment Project's assessments of jobs--found that Holland's categories differ systematically in the reinforcers they provide. Broad census categories have been used as a horizontal classification of jobs, so I have examined the relation of those categories with Holland's types. Those results are provided in Table 4.2 and show that the types are related in sensible ways with that classification. The enterprising category corresponds closely to managerial and sales work, and the realistic category corresponds to craftsmen, operatives, laborers and farmers. Clerical is primarily conventional work. Professional jobs are comprised primarily of (an include most of) the investigative artistic,and social job titles. Holland, Magoon, and Spokane (in press) also report systematic overlap of the six categories with the 14 DOT job groups.

Insert Table 4.2 About Here

I (in press) have also compared the 12 broad census categories, prestige level of job, and Holland's six categories in their ability to predict seven job characteristics. Holland's typology did more poorly than the other two in predicting level-related attributes of jobs such as involvement with data, specific vocational preparation, self-direction and GED. Relative predictive validity was more comparable for involvement with things and with people, two attributes only weakly correlated with job level but which should be related to Holland's types. When prestige level and Holland's six types were used to predict occupational reinforcer pattern scores, the two schemes were overall about equally predictive though, as expected, the former predicted level-related reinforcers better and the latter predicted field-related reinforcers better.

One of the most important findings of that study is illustrated in Table 4.3; the typology is related to level of work. Table 4.3 shows that the six Holland types of work differ in the levels of work that they provide. The mean status of occupational titles varies from a low of 35 for realistic work to a high of 58 for investigative work (on a scale of 0 to 88). GED is more commonly used than status in vocational counseling as a measure of occupational level, so mean GED is also presented for each category of work. GED produces the same ordering of the types as does prestige, but this is

Table 4.2

Status Level and Holland Type of Work in the Broad Census Categories

Census Category	Mean Status of Titles	Number of Occupational Titles					
		R	I	A	S	E	C
Professional, technical	62	15	49	13	36	8	2
Managerial	51	2	--	--	9	46	1
Sales	40	--	--	1	--	12	--
Clerical	38	6	1	--	4	3	29
Crafts	38	73	1	4	--	--	--
Operatives, except transport	28	49	--	--	--	--	1
Transport operatives	28	10	--	--	--	1	--
Laborers, except farm	18	14	--	--	--	--	--
Farmers and farm managers	35	1	--	--	--	1	--
Farm laborers	20	4	--	--	--	--	--
Service	26	18	--	--	16	2	--
Household	11	3	--	--	2	--	--

Source: L.Gottfredson (in press).

not surprising because the two measures of occupational level correlate .95 (using occupation as the unit of analysis). The lower two panels of Table 4.3 show the distribution of occupational titles and of the number of jobs (i.e., the number of workers) in each type of work at three broad levels of work in 1970. These panels indicate that realistic work is primarily low-level work and conversely that most low-level work is realistic. In contrast, investigative work is primarily high-level work, though the greatest number of high-level jobs is provided by social occupations.

Insert Table 4.3 About Here

The relation of level to field of work is a particularly important finding because the types are usually presented and used as equally desirable job categories and predictions about achievement are made for the different personality types. With few exceptions (G. Gottfredson, 1977; Gottfredson, Holland & Gottfredson, 1975), differences in job level have generally been ignored in tests of Holland's typology of people and jobs. Failing to take account of job level probably is not a serious omission in some work on vocational interests because many practical applications are related to counseling advanced high school or college populations whose aspirations tend to be high. But when the entire range of jobs in an economy is considered, characteristics associated with job level (such as authority and pay) but not necessarily with functional type of work, become important descriptors of job environments. Differences among the types in authority and responsibility (e.g., try out own ideas, make own decisions), abstractness of work (involvement with data), autonomy (self-direction), and other job characteristics related primarily to job level are exaggerated when differences in level among the types of work are not controlled. Differences among the

Table 4.3

Prestige and General Educational Development (GED) Level of Occupations in the Six Holland Categories

	Holland Type of Work					
	R	I	A	S	E	C
Mean Level of Occupational Titles:						
GED	3.1	5.3	4.7	4.5	4.3	3.5
Status	35	58	52	51	45	44
Number of Detailed Census Occupational Titles at Three Status Levels:[a]						
Low	151	0	2	19	13	18
Moderate	41	10	10	24	48	13
High	3	41	6	24	12	2
Number (thousands) of jobs[b] in 1970 at Three Status Levels:						
Low	28,512	0	22	2,804	3,966	6,060
Moderate	5,701	804	613	2,563	6,118	5,873
High	197	2,232	372	3,440	2,206	725

[a] Low = 0-39; moderate = 40-59; high = 60+ on Temme's (1975) prestige scale.

[b] Does not include supplementary jobs held by worker's employed in two or more jobs.

Source. L. Gottfredson (in press)

types of other characteristics, such as specific vocational preparation (SVP) disappear when prestige level is controlled. It is this finding that persuaded me that the Holland typology should as a rule always be accompanied by a measure of level of work when occupations and achievement are being examined.

The Status-Field Multidimensional Scheme

History and Development

Probably few theorists or researchers would maintain that occupations should not be conceived multidimensionally when studying career development and social mobility. Numerous people have hypothesized or demonstrated the importance of a whole host of occupational characteristics: industrial affiliation, responsibility, power, tasks performed, skill requirements, technological function, intrinsic and extrinsic rewards, and the list goes on and on. But when it comes to actually creating occupational classificatory systems for studying careers, only one dimension at a time has usually been utilized until recently.

Roe (1956; Roe & Klos, 1969) developed a scheme for vocational counseling characterized by six levels and eight groups (service, business, organization, technology, outdoor, science, general cultural, and arts and entertainment). The vocational and counseling literature of the last few decades reveals that Roe's scheme has seldom been used, however. Vocational theorists (Super, 1957; Holland, 1973) discuss the importance of level of work as well as field of work, but this theoretical recognition has seldom been operationalized in research.

Sociology has made more use of multidimensional measurement of occupations. Some of the schemes will be discussed in detail so that the status-field scheme proposed here can be more clearly evaluated. They fall into two groups: the earlier situs conceptions and the later segmentation theories.

As noted before, Benoit-Smullyan (1944) and Sorokin (1959) suggested studying both horizontal (situs) and vertical (status) dimensions of occupations when studying occupational mobility. Hatt (1950) also spelled out the differences between horizontal and vertical mobility and their implications for individuals. Hatt developed a set of eight situses which he proposed as parallel status ladders, but no one has ever used his scheme to my knowledge. Morris and Murphy (1959) developed a situs-by-status system, the situses being largely industrial. Apparently they made little use of the scheme. Hogan (1977) examined the possibility that occupational mobility is structured according to situs (which he measured by industry) as well as by status. Using multiple classification analysis techniques with the 1962 Occupational Changes in a Generation data (Blau and Duncan, 1967), he concluded that it is useful to consider situs (industry) in studies of occupational mobility. Blau and Duncan's (1967) analysis with the same data but using different procedures supports the same conclusion.

In 1967, Blau and Duncan published a book that popularized the use of occupational status scales in the study of social mobility. From that year until the last few years, the sociological study of careers was dominated by the use of multiple regression models to predict a person's occupational status. Other dimensions of occupations were largely ignored and situs rarely spoken of. Dissatisfaction with the narrowness of the status definition of occupations and of the labor market has been growing, however, and has been accompanied by the exploration of modifications in the status operationalization of occupations. This new approach for sociology is often referred to as the study of labor markets or the segmentation of labor markets.

Usually its roots are traced to economics, variously (among others) to Cairnes (1874) who spoke of non-competing sectors, Kerr (1954) who spoke of the balkanization of labor markets, or to Doeringer and Piore (1971) who spoke of the dual labor market.

A number of alternative views of labor market segmentation are now being developed, although the development of classificatory schemes is proceeding more slowly. I will not attempt to review all the segmentation research; that has been done elsewhere (Edwards, Reich, & Gordon, 1975; Cain, 1976; Kalleberg & Sorensen, 1979; Montagne, 1979). I will instead mention some of the work to illustrate the direction that work is taking and how it relates to my concerns here.

The basic idea behind the segmentation approaches is that career development proceeds differently in different work settings or environments, and also that the movement of workers between the sectors is restricted in some way. The segment different workers end up in is important because it determines how much career advancement, if any, they can look forward to and how well they will be rewarded for different traits or skills. At least three ways of classifying workers into segments other than my own are being developed, each reflecting a different theoretical notion of how the occupational world is subdivided into somewhat different and non-competing groups. We might say that they have different views of what the important horizontal job distinctions are. These three views are the dual labor market, the dual economy and the Marxist or class approaches.

Dual labor market theorists (see Doeringer & Piore, 1971; Gordon, 1972) suggest that employers in the primary and secondary labor markets organize employment differently. In the primary market the better workers are generally more highly rewarded. Worker stability is encouraged because of high training costs. Secondary jobs are the menial, dead-end jobs of society-- dishwashers, laborers, typing-pool typists, and so on. Investment in human capital (e.g. more education or experience) affects neither the productivity nor the rewards of workers in the secondary market. Secondary jobs neither require nor encourage stable workers. Furthermore, once a worker has worked in the secondary market, that worker is likely to be considered an unstable and unskilled worker and denied employment in the more desirable primary sector. The dual economy approach (see Beck, Horan, & Tolbert, 1978) suggests that there are core and periphery industries. Core industries provide better jobs because they are more often large oligopolistic industries with high productivity, profits, unionization of workers, political power, and many capital assets. Marxist schemes (see Wright & Perrone, 1977; Wright, 1978; Kalleberg & Griffin, 1980) propose more than two groups, often determined jointly by the ownership of the means of production and the control over the labor power of others: employers, managers, workers, and petty bourgeoisie.

These schemes generally classify individuals both by labor market segment and occupational status. It is interesting to note that these schemes all view some segments as being more desirable than others and create clear rankings of their advantage to workers. One is unlucky to find oneself in the secondary labor market, in a peripheral industry, or in the working class, and this fate is often conceived as the result of social and economic processes beyond a person's control. In none of these schemes is it sufficient to know a person's occupation to classify the worker. Indeed the schemes are often presented as schemes which are not classifications of occupations. Kalleberg and Griffin (1980) for example, discuss the differences between the occupational and class stratification systems and the need not to confuse the two.

In contrast to the fairly sequential and linear development of the various status scales in sociology, the development of segmentation models has been more concurrent and parallel. The different models have not been compared with each other, although considerable overlap among them probably exists because they produce similar conclusions about occupational mobility. For example, both Wright (1978; Wright & Perrone, 1977) and Beck, Horan and Tolbert (1978) predicted income separately within the different labor market segments and came to the same conclusions as I did when I predicted income separately according to Holland categories: (a) income differences among individuals are better explained using a segmentation model than with status as the only job characteristic considered, (b) education is relatively more important for success in some segments than in others, and (c) racial differences can be better explained by using a segmentation model because the races are segregated into somewhat different segments.

The development of my own status-field scheme using Holland's typology together with a status scale parallels the development of the foregoing segmentation conceptions. It is also a segmentation scheme because career development processes are assumed to differ according to which category of work one is in. The theoretical origins of the scheme are in the psychological study of human interests and abilities rather than in economics. Another difference is that the basis of my scheme is assumed to be the nature of work performed on the job. This work-function conception may bear some relation to the control of production (and thus to Marxist class categories) because supervision and decision-making are occupational duties in some occupations, particularly in managerial jobs. Different occupational functions require different types of training and abilities on the part of workers, so the scheme stresses the theoretical importance of the diverse nature of vocational abilities, interests and values.

There is certainly precedent for examining function of work. The nature of work performed has been suggested as important throughout the history of sociology (Durkheim, 1893/1964; Davis & Moore, 1945; Bell, 1973) in determining styles of life and occupational rewards. A clear justification also comes from vocational, industrial, and personality psychology. Different occupations involve performing different tasks, and these tasks require different skills, abilities, and interests. Performing these tasks also provides workers different types of non-monetary rewards (service to humanity, autonomy, a sense of order, etc.).

Sociologists (e.g. Durkheim, 1983/1964) as well as psychologists (e.g. Holland, 1973) have noted that occupational groups foster distinct clusters of values and interests. They represent different styles of life. We know that people in different occupations--e.g. social workers, engineers, laborers, artists, real estate agents, and accountants have different interests, have different friends and possessions, have different interests and values, and adhere to divergent political and religious beliefs. As Durkheim (1893/1964) suggested, different occupational groups may create different moral communities. Be this as it may, I am assuming that the differences in social organization associated with different fields of work lie in the constraints and opportunities presented to workers and employers by the nature of the work performed by the employee.

Given that we are interested in classifying occupations according to function of work, why should we choose Holland's typology to operationalize it? Indeed, Holland does not clearly state that his typology distinguishes occupations primarily according to function of tasks performed. He uses the types as global assessments of many aspects of the work environment. There are several good reasons for using it, though it may be the case that a better functional classification could be developed in the future for some purposes. First, Holland's theory and typology suggested that function is important; they are the original inspiration for much of the work done here. In addition, the typology has face validity because its categories correspond to many of the distinctions we commonly make among fields of work. As will be illustrated below, a status-field scheme using the typology has construct validity. Neither does there appear to be any better classification of work function at the present time. Another important reason for using Holland's typology is that it is widely used in the study of careers in vocational psychology, so using it in a status-field scheme enables direct use by sociologists of much data from psychology and in turn provides information from the sociological study of careers to psychologists. The status-field scheme creates a common language between the two disciplines. Holland's typology is also widely used by counselors, so research with the status-field scheme provides a more comprehensive view of the occupational world to counselors and counselees in terms that they commonly use.

Validity

In Chapter 2 , I reviewed research that led me to consider the status-field conception seriously and to operationalize it with the Holland typology. As noted above, that research suggested many the same conclusions about income determination as do other segmentation schemes. Thus, although that research suggests that the scheme is useful for studying career development, it does not necessarily support the contention that function of work is what is important or that Holland's typology measures function. The following pages provide more direct evidence for the construct validity of the Holland categories as a measure of function of work and for the construct validity of the composite status-field scheme.

Before going on to discuss validity issues, I should note that there are several options for combining status scales with Holland's typology. The options concern the degree of precision used in either the status or the Holland systems. One could assign one-letter, two-letter, or three-letter Holland codes. In all my work to date, I have opted for the simplest method--the one-letter major code. I provide evidence below only for the validity of the one-letter codes. One also has the option of using status scores along the entire scale or of collapsing the scale into a smaller number of groups. In some work (1977), I have treated the Holland types as separate labor market segments within which I used the entire range of the status scale (e.g. to create six parallel status "ladders"). In most of my work, I have grouped status scores into low, moderate, and high groups (1978a, in press) to create a 6 by 3 classificatory system. Many of the analyses of career behavior in this volume are based on this 6 by 3 scheme.

A necessary feature of any good classificatory system is that specific procedures be available for classifying cases. It is especially important if different investigators are to compare results. Currently, procedures are available for classifying all 1960 and 1970 detailed census titles. L. Gottfredson and Brown (1978) provide three-letter Holland codes and Temme (1975) prestige scores for 1960 and 1970 titles. Codes for 1980 will be published when those titles become available. If other status scales are used, one of the comprehensive publicly available lists should be used. As made clear earlier, many of the analyses to follow use Duncan's socioeconomic index scores. Appendix A provides the list of 1960 titles and Duncan codes, used in this report. The only other procedure for comprehensively classifying occupational titles by Holland type is Viernstein's (1972) translation procedure for use with DOT titles, and these should be considered only rough estimates. Holland's Occupations Finder (1977) provides good estimates, but it does not include all occupational titles.

The validity of the status-field scheme depends on showing that: (a) socioeconomic rewards increase with status level within each Holland type, (b) that functions of work vary in theoretically predicted or consistent ways among the Holland categories at the same level (some functions would be expected to be related to both field and level), (c) that the multidimensional scheme is considerably more useful than either of the dimensions alone, and (d) that it is more useful than alternative multidimensional schemes where the horizontal dimension is also function of work. It should also (e) be more useful than schemes where the horizontal dimension is something other than function, at least for questions where function of work is supposedly important. For some purposes, schemes based on other horizontal dimensions may be more useful. This would depend on the topic being investigated and would not necessarily suggest that a functional scheme was not ever to be preferred. Evidence will be provided for (a), (b), and (c). Evidence is also provided for (d), although it is admittedly weak because the only alternative functional scheme is the census categories which do not really constitute a multidimensional scheme. No evidence is available yet for (e).

Table 4.4 provides evidence about the economic rewards associated with type and level of work. This table shows the mean and standard deviation of 1969 personal income for fulltime, non-farm workers surveyed in the 1970 census of population. Results are presented separately for men and women, and for three status levels (using Temme's scale) and the six Holland types of work. Within all types of work, people in higher status occupations earn higher incomes. But the table clearly shows that income is related to type as well as level of work. In a few cases, people in lower level jobs (e.g. men in enterprising work) earn more than people in higher level jobs (e.g. men in social or conventional work). In addition, the variation in incomes varies tremendously according to type of work as well as level of work. High level work and enterprising work (in effect all the groups with high incomes) show more variation in income. Clearly, economic rewards are related to type as well as level of work, and the relatively high incomes for enterprising work and the relatively low incomes for social jobs make sense according to Holland's theory. Explanations for this pattern of results are discussed in L. Gottfredson (1977).

Insert Table 4.4 About Here

In other work (L. Gottfredson, in press) I have examined the validity of the status-field scheme using data on job functions and job requirements from the DOT (U.S. Department of Labor, 1965), and data on 21 job reinforcers from the Minnesota Work Adjustment Project (Lofquist & Dawis, 1969; Borgen et al., 1972; Rosen et al, 1972). The DOT characteristics include level of involvement with data, people, and things as well as specific vocational preparation (SVP) and general educational development (GED) level. Occupational reinforcer pattern scores are ratings of the relative prominence

Table 4.4

Mean and Standard Deviation of Income by Field and Status of Work: Men and Women Aged 36-65 Employed Fulltime (1970)

Occupational Status	Type of Work													
	R		I		A		S		E		C		Total	
	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)
							Men							
0-39	7810	(3660)	8730	(4480)	a		7940	(6290)	9060	(5640)	8640	(4660)	7990	(4030)
40-59	10300	(4200)	10550	(5070)	12810	(6930)	9900	(5380)	14940	(10200)	10760	(5540)	12470	(8020)
60+	15540	(6630)	20180	(11710)	15170	(7820)	12880	(6580)	20040	(11190)	13990	(7490)	17440	(10240)
Total	8670	(4210)	15730	(10760)	13650	(7350)	10870	(6340)	14620	(10180)	10910	(6130)	11050	(7620)
							Women							
0-39	4110	(2470)	a		a		1120	(2870)	3830	(2600)	4630	(2320)	4210	(2510)
40-59	6440	(3520)	6930	(3460)	6390	(6210)	6210	(3370)	7080	(5880)	5770	(3070)	6170	(3940)
60+	a		11660	(6520)	8680	(4220)	7860	(3670)	9910	(6450)	6740	(2900)	8110	(4160)
Total	4250	(2610)	9010	(5550)	7790	(5300)	6080	(3360)	5770	(5120)	5250	(2760)		

[a] Fewer than 30 cases.

of different rewards within an occupation. Self-direction (Kohn, 1969; Temme, 1975) was also examined. Mean scores for these occupational characteristics were examined for three status levels (Temme prestige scores of 0-39, 40-59, and 60+)and the six types of work. Table 4.5 lists the predictions that were made for the different variables. Table 4.6 presents the means for the DOT variables; Table 4.7 presents the results for occupational reinforcers.

Insert Table 4.5 About Here

Holland's typology implies that the six work environments differ in work activities and that, for example, social and enterprising occupations have particularly high involvement with people (see Table 4.5).

Table 4.6 reveals systematic differences by both type and level of work for involvement with data, people, and things. Involvement with data increases with occupational level in all types of work and is quite high in all types of high-level work compared to involvement with either people or things. (Note that a low score indicates high involvement.) Examining all three levels (where there are more than 5 occupations), artistic work has the highest involvement with data and realistic and conventional have the least involvement with data. Involvement with people increases with level in all types of work except realistic, where it is absent regardless of level. Involvement with people is highest in social and enterprising work and lowest in realistic work. In contrast, involvement with things is absent in social, enterprising, and conventional work but increases from moderate to high levels with increasing status level in realistic work. Involvement with things decreases from moderate levels as status increases in investigative and artistic work but it is still present to some extent in high-level work in these two categories.

Table 4.5

Hypotheses about Relation of Job Characteristics
To Holland Type and Status Level of Work

Variable	Relation of variable to: Status level (within Holland types)	Holland type (within status levels)
DOT Characteristics		
Involvement with people	+	S, E - hi; R - lo
Involvement with things	+	R - hi; S, E - lo
Involvement with data	+	
Specific vocational preparation (SVP)		
General educational development level (GED)	+	No differences
Self-direction	+	A, I - hi; C - lo
Reinforcer Patterns		
Try out own ideas	+	A - hi; C - lo
Company administers policies fairly		
Use individual abilities	+	
Do things for people		S - hi
Bosses back up their men		
Make decisions on own	+	
Feeling of accomplishment	+	
Bosses train their men well		

Table 4.5 -- continued

Variable	Status level (within Holland types)	Holland type (within status levels)
Reinforcer Patterns cont.		
Tell other workers what to do	+	
Plan work with little supervision	+	
Paid well relative to other workers	+	E - hi; S - lo
Opportunities for advancement		E - hi
Busy all the time		
Friendly co-workers		S - hi
Position of "somebody" in the community	+	
Receive recognition for work	+	
Have steady employment		CSR- hi
Good working conditions		
Work not morally wrong		
Work is different every day		A - hi; C - lo
Work alone		

Note. Blanks indicate that no predictions were made.

Source. L. Gottfredson (in press)

Insert Table 4.6 About Here

With only one exception, GED, SVP, and self-direction increase with level in all types of work, which is not surprising given their high correlations with prestige (see Table 4.1). Only self-direction shows substantial variation by type of work. It is highest in social and enterprising work and lowest in realistic work. The greater the involvement with both data and people and the less involvement with things, the more discretion workers appear to have in jobs of comparable prestige.

Hypotheses about differences among the Holland types were generally supported. GED and involvement with people and things varied (or did not vary) as predicted. There were differences among the types in self-direction and involvement with data, though not as predicted for self-direction. The differences in these two characteristics are related primarily to level rather than to type of work as indicated both by their high correlations with prestige (.85 and .80) and by the large mean differences being primarily between levels rather than between the types of work. Involvement with data, involvement with people (except in realistic work), GED, and self-direction all increased with level as predicted. Level of involvement with things increased with prestige level in realistic work, but--contrary to prediction--decreased in the two other categories (I and A) that had any involvement with things at any level.

In sum, the results (a) support the two most important hypotheses (differences among the types in level of involvement with people and things), (b) provide new information about the types, such as that levels of involvement with people and things vary systematically within as well as between the types, (c) that some job characteristics are related primarily to level

Table 4.6

Mean Score of Occupations on Self-Direction and Selected
Characteristics from the Dictionary of Occupational Titles:
By Status Level and Holland Type of Work

	Type of Work						
Status	R	I	A	S	E	C	Total
Involvement with Data[a]							
Lo	5.6	---	(1.4)	4.8	3.0	4.4	5.2
Mod	2.8	2.4	1.2	2.1	1.7	3.2	2.2
Hi	(0.1)	1.0	0.8	1.6	1.3	(1.7)	1.2
Total	4.9	1.3	1.1	2.7	1.9	3.8	3.4
Involvement with People[a]							
Lo	7.7	---	(8.0)	6.1	5.6	7.3	7.4
Mod	7.4	7.4	5.9	4.9	5.3	7.0	6.2
Hi	(7.8)	5.1	5.3	2.4	3.3	(4.8)	4.2
Total	7.6	5.5	5.9	4.4	5.1	7.1	6.3
Involvement with Things[a]							
Lo	4.1	---	(1.0)	7.6	7.3	6.5	4.8
Mod	2.9	3.6	4.8	7.7	7.5	7.8	5.8
Hi	(1.7)	5.8	6.8	8.0	7.5	(8.0)	6.6
Total	3.8	5.3	5.0	7.7	7.5	7.1	5.5

Table 4.6 -- continued

	Type of Work						
Status	R	I	A	S	E	C	Total
Specific Vocational Preparation (SVP)							
Lo	4.4	---	(7.4)	4.1	4.9	3.6	4.4
Mod	6.7	6.2	6.8	6.5	6.6	5.1	6.5
Hi	(7.9)	7.6	7.6	7.4	7.6	(7.6)	7.5
Total	4.9	7.3	7.2	6.1	6.4	4.4	5.7
Self-Direction							
Lo	4.0	---	(10.0)	11.3	13.0	8.5	5.7
Mod	10.1	11.8	15.2	17.8	17.0	13.5	14.4
Hi	(15.0)	19.6	20.5	22.8	21.7	(20.8)	20.7
Total	5.4	18.0	16.4	17.7	17.1	11.2	11.6
General Educational Development (GED) Level							
Lo	2.8	---	(4.0)	3.3	3.4	3.0	2.9
Mod	4.0	4.3	4.4	4.5	4.3	3.8	4.2
Hi	(5.4)	5.6	5.5	5.4	5.3	(5.4)	5.5
Total	3.1	5.3	4.7	4.5	4.3	3.5	3.9

Source. L. Gottfredson (in press).

Note. Parentheses indicate N ≤ 5.

[a] A high score on data, people, or things indicates low involvement.

rather than type of work, so that although the types differ on the average in general training requirements (GED and SVP) these differences essentially disappear when occupations of similar prestige levels are compared, and (d) the six categories are not all well distinguished by self-direction and the DOT characteristics analyzed here, for example, the means for social and enterprising occupations being generally the same and conventional occupations not appearing distinctive in any way.

Table 4.7 presents the means for occupational reinforcer pattern scores. Scores are available for only 148 titles, representing 120 detailed census titles. Table 4.7 presents the means for the 10 reinforcers most strongly associated with either status or the Holland typology. (All reinforcers will be discussed a little further below.)

Insert Table 4.7 About Here

The number of occupations within each of these groups is generally small, but the table shows some interesting patterns. Results are much the same for five of the reinforcers--try out own ideas, use individual abilities, make own decisions, get feeling of accomplishment, and plan work with little supervision--because they are highly correlated with each other (.7 to .9). With few exceptions, these 5 reinforcers are ranked as more prominent reinforcers in the higher-level than lower-level jobs in all Holland categories of work. The relative prominence of these reinforcers varies somewhat across type of work as well, but the differences are not striking. Concentrating on moderate-level work (where the N is at least 5 in all categories), "planning work with little supervision" and "make decision on own" appear to be somewhat more prominent reinforcers in artistic, social, and enterprising work. This result is consistent with the higher degree of self-direction Table 4.6

Table 4.7

Mean Unadjusted Scores on 10 Occupational Reinforcers:
Occupations Grouped by Status Level and Holland Type of Work

Status	R	I	A	S	E	C	Total
Try out own ideas							
Lo	-.18	---	---	-.18	.10	-.54	-.20
Mod	-.07	-.17	.51	.21	.12	-.40	-.02
Hi	(.64)	.07	(.70)	.46	(.45)	(.20)	.30
Total	-.13	-.02	.54	.18	.16	-.38	-.06
Plan work with little supervision							
Lo	-.06	---	---	-.21	.02	-.12	-.07
Mod	-.03	.03	.14	.22	.23	.11	.07
Hi	(.53)	.23	(.09)	.34	(.31)	(.36)	.29
Total	-.04	.15	.13	.13	.13	.04	.04
Use individual abilities							
Lo	.40	---	---	.30	.56	.06	.36
Mod	.52	.43	.94	.69	.60	.25	.54
Hi	(.95)	.61	(1.01)	.83	(.76)	(.81)	.76
Total	.45	.54	.95	.62	.60	.24	.49
Make decisions on own							
Lo	-.12	---	---	-.09	.11	-.37	-.13
Mod	.09	.01	.30	.23	.42	-.08	.12
Hi	(.59)	.33	(.38)	.48	(.42)	(.33)	.40
Total	-.04	.21	.31	.22	.26	-.16	.04
Feeling of accomplishment							
Lo	.39	---	---	.43	.31	.24	.36
Mod	.48	.57	.78	.74	.56	.24	.52
Hi	(.60)	.62	(.91)	.57	(.48)	(.64)	.60
Total	.42	.60	.80	[illegible]	.42	.29	.46

Table 4.7 -- continued

Status	R	I	A	S	E	C	Total
Bosses train their men well							
Lo	.10	---	---	.03	.04	.13	.10
Mod	-.05	-.04	-.24	-.32	-.23	-.02	-.12
Hi	(-.35)	-.31	(-.29)	-.48	(-.24)	(-.30)	-.36
Total	.05	-.21	-.24	-.28	-.09	.01	-.05
Bosses back up their men							
Lo	.17	---	---	.04	.08	.06	.13
Mod	-.07	-.06	-.32	-.20	-.16	.02	-.11
Hi	(-.21)	-.30	(-.36)	-.23	(-.10)	(-.14)	-.23
Total	.08	-.20	-.32	-.14	-.03	.02	-.01
Company administers policies fairly							
Lo	.30	---	---	.11	.23	.21	.26
Mod	.01	-.12	-.17	-.12	-.03	.17	-.02
Hi	(-.23)	-.32	(-.33)	-.10	(.01)	(-.18)	-.20
Total	.19	-.24	-.19	-.05	.12	.14	.09
Do things for other people							
Lo	.01	---	---	.94	.04	.56	.17
Mod	-.01	.25	.06	.91	.48	.27	.23
Hi	(-.26)	.18	(.27)	.80	(.07)	(.36)	.38
Total	-.10	.21	.09	.88	.19	.42	.22
Paid well relative to other workers							
Lo	.15	---	---	-.39	-.01	-.06	.06
Mod	.03	-.07	-.11	-.44	.13	-.17	-.08
Hi	(-.13)	.07	(-.71)	-.51	(.24)	(-.22)	-.18
Total	.11	.02	-.20	-.45	.07	-.13	-.03

Table 4.7 -- continued

Status	R	I	A	S	E	C	Total
Number of Occupational Titles							
Lo	46	0	0	6	8	10	70
Mod	24	5	6	7	5	9	56
Hi	1	8	1	7	2	3	22
Total	71	13	7	20	15	22	148

Note. Parentheses indicate N< 5.

Source. L. Gottfredson (in press).

showed to be available in these types of work. The three other reinforcers--use individual abilities, try out own ideas, and get a feeling of accomplishment--are generally most dominant in artistic work and least dominant in conventional work.

The ranking of three additional reinforcers--bosses train their men well, bosses back up their men, and company administers policies fairly--are also highly correlated with each other (.7 to .9). Whereas the first five reinforcers are more dominant reinforcers among high-level jobs, these latter three reinforcers appear to be ranked higher in low-level jobs and are generally ranked quite low in high-level work. There is a slight tendency for these to be ranked higher in realistic and conventional work and lower in artistic work. The results for this and the foregoing set of variables are consistent because the two sets of variables are negatively correlated. "Try out own ideas", for example, is ranked high and "bosses train their men well" is ranked low in artistic work compared to other categories of work, but the opposite is true for conventional work. These results also make sense in terms of Holland's predictions about the six types: structured work is characteristic of conventional work but creativity is characteristic of artistic work.

"Do things for other people" is clearly most prominent in social jobs and least prominent in realistic work at all levels, though it is more prominent at lower levels than higher levels in both types of work. The results for this reinforcer present a somewhat different pattern than was found for the DOT characteristic of involvement with people(Table 4.6) but this is not surprising because (a) the reinforcer scores are ipsative and the DOT scores are not and (b) it is not clear that these two variables measure the same characteristic. Involvement with people refers both to helping people and to manipulating people (the former being characteristic of social jobs and the latter of enterprising jobs) and the results showed it high for both social and enterprising jobs. In contrast, raters in the Work Adjustment Project may have interpreted "do things for others" primarily as helping activities and therefore rated social but not enterprising work especially high on this reinforcer.

"Paid well relative to other workers" is not rated highly as a reinforcer in any category. Its rank as a reinforcer appears to increase with status level in investigative and enterprising work but decrease with level in the other four categories of work. Pay is ranked highest as a reinforcer in enterprising work and lowest in social and artistic work. This result is consistent with pay differences in Table 4.4 and which have been found in other research: when years of education and prestige level are held constant, pay is highest in enterprising work and lowest in social (L. Gottfredson, 1977).

Results were generally as predicted for the reinforcers discussed above. The hypotheses about the relation of the Holland types to "try out own ideas", "do things for people", and "paid well relative to other workers" are supported. Five of the six characteristics hypothesized to increase with level did so. Contrary to prediction, being paid well relative to other workers decreased in relative importance as status level increased. This reflects the probability (L. Gottfredson, 1980) that the pay reinforcer measures a sense of equity rather than providing an estimate of absolute pay levels. Another four reinforcers--company administers policies fairly, bosses back up their men, bosses train their men well, and do things for other people--were negatively related to status level, none of those relations having been predicted. The few predictions made for the other reinforcers are not discussed here because they did not show any consistent pattern of differences.

The previous analyses suggested that the status-field scheme is related in sensible ways to function of work and other occupational characteristics. They also suggest that the status-field scheme is more useful for describing occupational differences than is either the status scale or the Holland typology alone. The following tables examine this validity issue more analytically.

Table 4.8 shows the proportion of variance in each of 21 occupational reinforcers which is predicted by the prestige scale, by Holland's 6 categories, and by the status-field scheme. The status-field scheme predicts at least one-third of the variance in the rankings of 8 reinforcers. Comparisons of the proportions of variance associated with the status-field scheme to that associated with prestige level only or with the 6 Holland categories only show that the relative importance of 7 of these 8 reinforcers varies by both type and level. In contrast, dealing with people ("do things for people") is associated almost entirely with type rather than level of work.

Insert Table 4.8 About Here

Table 4.9 compares the ability of the same three schemes--status, Holland type, and status-field--to account for the DOT job characteristics. As such, it continues to test if the status-field scheme is more useful than the other two alone. But Table 4.9 also compares the ability of these three schemes with that of the 12 broad census categories to predict job characteristics. If we consider the census scheme to be an alternative status-field scheme, this provides us a test of whether my scheme using Holland categories and status is more useful than the alternatives. Unfortunately, this does not provide a good test, because the census categories were not designed to distinguish

Table 4.8

Proportion of Variance in Occupational Reinforcers Accounted for by Holland's Categories, Status Level, and the Status-field Scheme

Occupational Reinforcers	Status Level	Holland's 6 Categories	Status-field Scheme[c] (F Ratio)
Try out own ideas	.26	.26	.45 (6.2)**
Company administers policies fairly	.31[a]	.23	.40 (5.2)**
Use individual abilities	.26	.22	.40 (5.2)**
Do things for other people	.01	.35	.39 (4.8)**
Bosses back up their men	.30[a]	.21	.39 (4.8)**
Make decisions on own	.30	.17	.37 (4.5)**
Feeling of accomplishment	.22	.24	.36 (4.3)**
Bosses train their men well	.28[a]	.17	.34 (4.0)**
Tell other workers what to do	.02	.07	.28 (2.9)**
Plan work with little supervision	.20	.07	.25 (2.6)*
Paid well relative to other workers	.04[a]	.21	.25 (2.6)*
Opportunities for advancement	.03	.16	.24 (2.4)*
Busy all the time	.07[a]	.11	.23 (2.3)*
Friendly co-workers	.16[a]	.11	.22 (2.1)
Position of "somebody" in the community	.09	.08	.22 (2.1)
Receive recognition for work	.02[a]	.10	.21 (2.1)

105 106

Table 4.8- Continued

Occupational Reinforcers	Status Level	Holland's 6 Categories	Status-Field Scheme (F-Ratio)
Have steady employment	.05[a]	.07	.21 (2.0)
Good working conditions	.06[a]	.06	.18 (1.7)
Work not morally wrong	.07[a]	.05	.16 (1.4)
Work is different every day	.00	.09	.14 (1.2)
Work alone	.04[a]	.05	.12 (1.1)

Source. L. Gottfredson (in press).

$* \; P \leq .01.$

$** \; P \leq .001.$

[a] The correlation with prestige was negative.

[b] The abbreviation of the reinforcer titles suggested by the Work Adjustment Project (Borgen et al., 1968) do not adequately convey the content of the items. Both Rounds et al. (1978) and Toenjes and Borgen (1974) use those abbreviations, however, so they are listed as follows (in the same order as listed in this table): creativity, company policies and practices, ability utilization, social service, supervision-human relations, responsibility, achievement, supervision-technical, authority, autonomy, compensation, advancement, activity, co-workers, social status, recognition, security, working conditions, moral values, variety, and independence. Unadjusted scores were used in this analysis, but both adjusted and unadjusted scores are reported in L. Gottfredson,(in press).

[c] The status-field scheme is created from 3 status levels and 6 Holland types. Only 17 of the possible 18 catagories are used because there are no low-level investigative occupations.

clearly between the horizontal functional and the vertical status differences among occupations. They are, however, used sometimes as if they had been.

Insert Table 4.9 About Here

Table 4.9 shows the proportions of variance accounted for by the four schemes. Although the proportions of variance are listed for 7 variables, there are really only 3 comparisons with which to assess relative discriminant validity--people, things, and level. As Table 4.1 showed, GED, data, status, SVP, and self-direction are highly correlated and appear to represent a general level factor. Table 4.9 shows that the status scale predicted from .6 to .9 of the variance in the level variables--data, SVP, self-direction, and GED. Status predicted almost none of the variance in involvement with things. The 12 census categories distinguish level to about the same degree as does the status scale, but they distinguish levels of involvement with people and especially with things better than does the latter scale. When Holland's six categories are used instead of either the status or census schemes to summarize job differences, the proportion of variance in job characteristics predicted is lower--primarily for the status-related DOT characteristics. The six categories, however, summarize distinctions in the job activities of working with people and things to about the same extent as does the census scheme and to a greater degree than does the status scale. The proportions of variance increase, however, when status-field scheme is used. With two exceptions (SVP and involvement with things), the proportions of variance predicted are as high or higher than those for the census scheme. The census scheme makes more distinctions among (i.e. has more categories for) realistic occupations--where distinctions in things and SVP also appear to be most important--than does the status field scheme, thus probably

Table 4.9

Proportion of Variance in Selected Occupational Characteristics Accounted for by Different Groupings of Occupations

Occupational Characteristics	Status Level[a]	12 Census Categories	6 Holland Categories	Status-Field Schem (17 Categories)
Data	.64	.70	.44	.67
People	.34	.40	.40	.55
Things	.04	.55	.42	.47
SVP	.70	.70	.29	.60
Self-Direction	.72	.76	.62	.81
GED	.90	.74	.52	.82
Status	--	.74	.48	.83

[a] Scale from 0-88.

Source. L. Gottfredson (in press).

explaining the census scheme's greater ability to account for variance in these two characteristics.

In summary, the results are consistent with what was pradicted from Holland's theory, but how well does the status-field scheme do as a classification of occupational function? It appears to do well. It should be pointed out at the outset that it is quite clear that functional differences among occupations are related to both field and level of work. This makes sense, of course; we expect people in high level jobs as well as in different fields to be performing different tasks. And this is consistent with Davis and Moore's (1945) theory that functionally important jobs are more highly rewarded.

The following job characteristics can be considered measures of function of work (even though some are referred to elsewhere as "reinforcers"): involvement with data, people, and things, do things for other people, "make decisions on own", and "tell other workers what to do". The proportions of variance accounted for were respectively, .67, .55, .47,, .39, .37, and .28. The first three are reasonably high. It should be pointed out again that the latter three characteristics are ipsative scores, so that they reflect not absolute levels of the function but only the distinctiveness of that reinforcer compared to others within the same occupation. This may account for the lower variances explained. The results suggest that involvement with data (abstract work) and "make own decisions" are related primarily to level of work. Involvement with people and doing things for other people are primarily related to field of work. There is the much greater involvement with things in realistic work than in the other fields; another difference is that involvement with things increases with level in realistic work but decreases with level in the other fields with any involvement at all. Tell workers what to do was not well predicted, but it appears related to both field and status.

The status-field scheme actually predicted some occupational rewards and requirements much better than it did job functions. This could reflect the fact that the measures of function of work were not very good. They were simply the best available measures at the time. If we were to look at the status-field scheme as a classification of occupations according to rewards and requirements, we would conclude from the results that it is as good as or better than any of the other schemes examined here, including the status scale.

Chapter 5

THE NATIONAL LONGITUDINAL SURVEY

The chapters later in this volume which examine career development are based on data from the National Longitudinal Survey (NLS) of the Labor Market Experience of Young Men (Parnes et al., 1970). This chapter describes the survey, including its advantages for studying career development among young people. An important question about any survey is "What population do the respondents really represent and to whom can we generalize the results?" This question will be examined in detail below and the results reveal a number of limitations which should be kept in mind.

Description

The NLS survey[1] was planned and designed by the Center for Human Resource Research (CHRR) at the University of Ohio under the direction of Herbert S. Parnes, and the sampling and field work were carried out by the Census Bureau. Both the Census Bureau and the CHRR were under contract with the Manpower and Training Administration of the Department of Labor. The sample was designed to be representative of the U.S. civilian noninstitutionalized population aged 14-24 in 1966. Blacks were over sampled, so about one third of the 5225 men in the sample are black. The men were interviewed in detail every year from 1966 to 1971 about their educational and labor market experiences. Information was also collected about the respondent's education and occupational aspirations and expectations, about the respondent's family and about a variety of other factors which could be expected to influence career development. Shorter interviews in later years have been conducted, but they have not been used in this volume.

---

[1] There are actually four NLS surveys. Besides the survey of boys used here, there are also surveys of girls 14-24, women 30-44 and men 45-59.

Advantages of the NLS

The NLS survey has many advantages for studying early career development. It is a nationally representative sample of men at a critical stage of career development--the transition from high school to work or to further education, and including the first decade of career development. Another advantage not found in most longitudinal surveys is that blacks have been over sampled, so there are enough cases for some detailed analyses. The surveys collected information on many career-relevant variables, from measures of personality to measures of conditions in the local labor market. Labor force concepts in the NLS are identical to those in the BLS Current Population Survey (from 1967 on) and in the 1970 census, allowing comparisons between the NLS survey and much other government data. A number of key questions were repeated every year, allowing direct comparisons over the different surveys. The greatest advantage of the NLS is that it is longitudinal for several age groups. Among the advantages of such a survey is the ability it provides to better determine causal relations and to better disentangle maturation from cohort and period effects when studying changes over time. Cohort, period and age differences are examined in some detail in a later chapter.

Limitations of the NLS

Not all people aged 14-24 are represented in the sample. Although women 14-24 were interviewed in another NLS survey, those data have not been used here. Non-black minorities were not oversampled, so there are too few from which to draw any generalizations and they have been excluded here. A more serious omission--partly because its dimensions are unknown--is that the sample includes only civilians in 1966. A much larger proportion of the 18-22 year olds were in the military in 1966 than were the younger and older men. This has two consequences. First, the different age groups are not equally representative of all men of those age groups. The second problem, which is a consequence of the first, is that any developmental patterns in the 18-22 group may be less descriptive of that age group than are the patterns for other age groups.

Another limitation to keep in mind is that the survey was carried out in the years 1966-1971. We might wonder how much we can generalize from the experiences of young men a decade ago to men today. Not only are there secular trends in education and employment, but each period in history has its unique conditions and events which affect employment problems. The historical context of the NLS survey is discussed in the chapter on cohort, age, and time differences.

The non-random sampling of the plan of the NLS (Andrisani & Kohen, 1975) requires that weights be applied to the cases in the sample in order to produce estimates for the national population. Therefore, statistical procedures assuming normal random sampling are not appropriate. The CHRR has provided estimates of standard errors for percentages. These are shown in Appendix B. I have not tested the statistical significance of differences in many of the analyses, but rely instead on the size, regularity and consistency of results as a guide to what is substantively important. As will be illustrated below, if the races and ages are examined separately, using the sampling weights makes no appreciable difference in most analyses. Thus most of the analyses simply use the unweighted data.

Attrition of the sample is a serious concern in any longitudinal study. A sample that may initially be representative of the population may become quite biased over time as respondents drop out of the sample. Attrition was relatively low in this NLS survey. About 76% of the 1966 sample was interviewed again in 1971. Men were not interviewed the years they were in military service, but they were included in the sample after their service if they could be located. About half the men missing from the sample in any year were in the military, and many of them eventually returned to the sample. Attrition was non-random. The CHRR (see, for example Appendix D of Adrisani & Kohen, 1975) has reported for which groups attrition is greatest. They include men enrolled in school in 1966, blacks, and the geographically mobile.

Kohen et al. (1977) report that attrition rates were higher particularly for central city and non-south blacks. The following quote from Kohen et al. (p. 5) summarizes some important differences in attrition rates and the caution they necessitate in interpreting results from the NLS data.

> "First, there is a racial difference in attrition according to socioeconomic status (SES) of the respondent's parental family. Specifically, among the members of the cohort attending school in 1966, attrition was above average for blacks from medium and high SES families, whereas it was below average for whites from high SES families. A similar pattern may be discerned among those who were out of school

> at the time of the 1966 survey; i.e., the attrition rate of low SES blacks was much below average while that of high SES whites was much below average. These patterns of attrition imply that...the estimates of black/white differences may be biased upward, and, therefore, we attempt to be cautious in discussing such differences. Finally, among those members of the sample who were out of school at the time of the 1966 survey the rate of attrition was inversely related to the amount of schooling they had completed as of 1966, irrespective of race. Thus, the data may yield an overstatement of the positive relationship between amount of schooling and mobility."

Although the overall attrition rate is fairly low, differences between men who leave versus stay in the sample may bias results for some years of the survey. Although knowing where the bias exists does not do away with the problem, it does help in interpreting the results. It is particularly important in this study to understand where the bias may exist, because many of the analyses attempt to chart developmental changes as well as cohort differences. Therefore, the next section examines the question of bias in more detail.

Bias from Different Sources

Four types of bias are discussed below: (a) bias from non-response to particular items, (b) response bias in questions that are answered, (c) bias due to attrition, (d) bias that results from not weighting the data according to sample weights.

Bias from Non-response

Non-response refers to the failure to obtain usable information from men who were actually surveyed. Bias arises if the men who failed to provide usable (or any) answers are different from those who did provide usable answers to questions. I provide no detailed analysis of this particular aspect of bias, but rely instead on analyses by Parnes et al. (1970) and Griliches, Hall, and Hausman (1977, as reported in Bielby, Hawley & Bills, 1978). Parnes et al. (pp. 223-227) found that rarely was non-response greater than 10% in 1966. Table 5.1 shows the non-response rates they found for questions which are central to the analyses in this volume, and it reveals that most non-response rates are essentially zero. Griliches et al. reported on a potentially more serious non-response problem, that IQ data were missing for about 35% of the sample. Although IQ data were less likely to be available for lower SES men (Kohen & Shields, 1977), Griliches et al. apparently concluded that the missing IQ data introduce little bias in estimates of the effect of IQ on other variables.

Insert Table 5.1 About Here

Response Error

The reliability and validity of the NLS questionnaire items has seldom been examined. Borus and Nestel (1973) reported on two important variables, however. They examined the accuracy with which respondents reported their father's occupation and education. They found that accuracy was extremely high, although some groups (e.g. poor rural blacks) were less accurate than others. Although their study is heartening, it should be pointed out that it included only men currently living with their fathers. Because many of the men were not living with their fathers at the time of survey, one would expect less accuracy. Also, respondents were asked about the father's current occupation, but the father's occupation variable used here is the one he held when the respondent was age 14. One would expect errors of recall for these retrospective reports.

One comparison between NLS data and that of the Bureau of Labor Statistics is relevant here. Tables 5.2 and 5.3 show the labor force

Table 5.1

Non-response Rates in 1966:
By Race and Selected Survey Questions[a]
(Percentage)

Question	Whites	Blacks
Educational goals	1.6	1.4
Years of school completed	0.0	0.0
Enrollment status	0.0	0.0
Income of respondent	7.9	9.0
High school curriculum	2.7	3.0
Hours worked in survey week	0.0	0.0
Labor force status	0.0	0.0
Occupation	0.9	1.5
Occupational goal	4.2	3.0
Father's occupation when youth was age 14	6.5	12.7

[a] Percentage apply only to the applicable universe, e.g. the universe forhigh school curriculum would be only thosemen with some high school experience.

Source: Parnes et al (1970, pp.223-227).

participation and unemployment rates for different age groups in different survey years as calculated with NLS data and from the Current Population Survey--the latter being taken from the Employment and Training Report of the President (U.S. Department of Labor, 1979). The results are clearly different, particularly for men aged 14-15. Participation rates are higher in the NLS than the CPS for both blacks and whites. Unemployment rates are higher in the NLS for younger men, but they are lower for older men. Parnes et al. (1970, Appendix E) list some of the differences between the two surveys which may account for the difference: the mother and not the boy generally reports the data in the CPS, boys are slightly older in the NLS, the labor force concepts were slightly different in 1966 (but not in later years), and so on. Nevertheless the differences between the two surveys are quite large for younger men in particular. I would assume that the data are probably more accurate for the NLS because the boy himself rather than some other person supplied the information. But the discrepancies do suggest that the NLS data are not as comparable as was planned with other government data.

Insert Tables 5.2 and 5.3 About Here

Bias due to Attrition and Not Using Sample Weights

These two sources of bias will be dealt with together because they reflect the same basic problem--that the sample is not representative. The sample was not representative in the first year, because of the stratified sampling design and because of the oversampling of blacks. Weights were created to make the data representative and they reflect the number of men each respondent represented in the population. Weights were

Table 5.2

Civilian Labor Force Participation Among Males: By Age, Race, Year and Source of Data (Percentage)

	Census Data[a]				NLS Data							
					unweighted				weighted			
Age:	14-15	16-17	18-19	20-24	14-15	16-17	18-19	20-24	14-15	16-17	18-19	20-24
White												
1966	22.3	47.1	65.4	84.4	44.8	62.0	73.4	88.6	45.6	63.0	74.3	88.2
1967	22.6	47.9	66.1	84.0	-	62.3	69.8	88.1	-	62.5	71.1	86.7
1968	22.7	47.7	65.7	82.4	-	61.8	72.5	85.0	-	62.7	73.4	85.6
1969	23.0	48.8	66.3	82.6	-	-	73.9	85.8	-	-	73.6	86.8
1970	23.0	48.9	67.4	83.3	-	-	69.7	86.9	-	-	69.2	87.2
1971	23.7	49.2	67.8	83.2	-	-	-	89.1	-	-	-	89.3
Black[b]												
1966	17.3	41.1	63.7	89.9	52.5	66.3	79.22	92.7	49.4	65.4	77.9	93.6
1967	18.3	41.2	62.7	87.2	-	61.5	80.3	93.4	-	62.3	81.6	93.9
1968	18.1	37.9	63.3	85.0	-	64.4	78.4	91.7	-	64.5	79.2	93.3
1969	15.8	37.7	63.2	84.4	-	-	80.8	88.0	-	-	78.9	90.3
1970	16.6	34.8	61.8	83.5	-	-	79.3	89.8	-	-	80.3	90.8
1971	15.2	32.4	58.9	81.5	-	-	-	90.0	-	-	-	87.9

[a] From the *Employment and Training Report of the President*, 1979, Table A-4, pp. 241-242.

[b] Census data include black and others.

Note: The rate is the ratio of men employed or unemployed (looking for work) to the total number of men in the relevant age group (multiplied by 100).

Table 5.3

Unemployment Rates for the Male Civilian Labor Force: By Age, Race, Year and Source of Data
(Percentage)

	Census[a]				NLS Data							
					unweighted				weighted			
	14-15	16-17	18-19	20-24	14-15	16-17	18-19	20-24	14-15	16-17	18-19	20-24
White												
1966	7.6	12.5	8.9	4.1	20.1	14.0	8.7	1.9	21.4	13.8	9.0	2.3
1967	8.9	12.7	9.0	4.2	-	15.1	8.2	2.5	-	15.7	8.5	2.5
1968	8.3	12.3	8.2	4.6	-	13.3	6.5	3.0	-	13.3	6.3	2.9
1969	8.5	12.5	7.9	4.6	-	-	11.0	4.0	-	-	11.3	3.7
1970	10.1	15.7	12.0	7.8	-	-	11.6	6.6	-	-	11.1	6.7
1971	10.8	17.1	13.5	9.4	-	-	-	7.5	-	-	-	7.5
Black[b]												
1966	20.0	22.5	20.5	7.9	30.6	21.5	13.7	4.6	27.3	23.6	10.9	3.2
1967	24.1	28.9	20.1	8.0	-	23.1	14.5	8.3	-	26.8	16.9	7.3
1968	26.0	26.6	19.0	8.3	-	27.0	11.5	3.9	-	23.5	12.1	3.2
1969	22.1	24.7	19.0	8.4	-	-	15.3	7.4	-	-	13.3	7.3
1970	29.0	27.8	23.1	12.6	-	-	20.3	11.8	-	-	19.8	12.8
1971	32.2	33.4	26.0	16.2	-	-	-	11.9	-	-	-	11.0

[a] From the Employment and Training Report of the President, 1979, Table A-21, pp. 268-269.

[b] Census data include black and others.

Note. The rate is the ratio of men unemployed to those either employed or unemployed (multiplied by 100).

not recreated in the following years to correct for bias due to attrition.

Table 5.4 shows the mean sampling weights used for men in the different age and race groups. The first thing it illustrates is that some age groups were poorly represented in the sample. The higher mean weights for white men aged 19-21 indicate that the initial sample contained proportionately fewer of those men than was the case for older and younger groups. Many of these men were probably in the military, so it means that the sample of these ages is less representative. It also suggests that it would be unwise to use unweighted data in any analysis that does not examine the age groups separately. Blacks must also be examined separately if unweighted data are to be used, because they are overrepresented by a factor of three (hence their weights are approximately one third those of whites). Their age groups are not equally representative as was the case with whites as well. Black men 19-24 have weights 1.5 to 2 times those of younger men, meaning that they are underrepresented relative to younger men.

Insert Table 5.4 About Here

It is clear that weighted data are preferable if age or racial groups are to be combined. But are weighted data necessary if these groups are kept separate? And how does subsequent attrition bias the results? Table 5.5 shows the percentages of men missing from the sample in each survey year after 1966, both for unweighted and weighted data. Weighting appears to make no difference in estimates of attrition. Attrition rates rise to 30% among white men 19-21 (e.g. see men who were 17 in 1966). As the men grew older, however, more of them returned to the sample. For example,

Table 5.4

Mean Sampling Weight: By Age and Race (Thousands of Men)

Age in 1966	Whites $\overline{X}$	Whites (N)	Blacks $\overline{X}$	Blacks (N)
14	3449	(476)	1063	(205)
15	3499	(446)	1153	(212)
16	3589	(448)	1156	(235)
17	3524	(416)	1160	(178)
18	3562	(377)	1068	(134)
19	4632	(300)	1610	(97)
20	4741	(208)	1568	(82)
21	4597	(218)	2116	(74)
22	3614	(279)	1569	(67)
23	3682	(283)	1802	(69)
24	3522	(279)	1985	(80)

almost 34% of the men who were 17 in 1966 were missing from the sample in 1969 when they were aged 20, but two years later only 23% of them were missing. Attrition rates remained low for the oldest age groups in 1966, ages 22 to 24. Attrition rates for blacks are higher than for whites in the last three years of the survey. The same age pattern appears, but the rates go as high as 45%. This table suggests that attrition could create considerable bias in the results. Tables 5.6 to 5.8 examine this possibility as well as the necessity of using sample weights in the analyses. Surprisingly, these tables suggest that weights generally are not necessary and that attrition bias may not be particularly troublesome.

Insert Table 5.5 About Here

Tables 5.6 to 5.8 examine characteristics of men that are related to occupational attainment, but that do not change over time--IQ in high school, father's education, and father's occupational status when the respondent was age 14. The strategy here has been to look at these variables each year for only those men who were surveyed in that year (as shown in Table 5.5) and to examine this information both when weighted and when not weighted. Presumably, the only reason the samples would appear different from year to year would be because of bias due to attrition and initial non-representativeness.

Table 5.6 show the mean IQ of men in the sample in any particular survey year. The first thing to notice is that younger white men have higher IQs; this is not so clear for blacks. This difference does not seem to be related to how representative the sample is (as illustrated in Table 5.4). This may be a genuine cohort difference because older cohorts have generally

Table 5.5

Percentage of Cases Missing by Age in 1966 and Survey Year (Unweighted and Weighted)

Age in 1966	N in 1966	1967 U	1967 W	1968 U	1968 W	1969 U	1969 W	1970 U	1970 W	1971 U	1971 W
Whites											
14	476	1.9	1.9	5.3	4.9	10.7	10.7	19.3	19.5	25.4	26.0
15	446	2.0	2.0	9.6	9.4	17.0	17.2	24.7	25.2	25.8	26.4
16	448	7.6	7.8	18.8	18.8	31.5	31.0	31.0	31.1	25.7	26.3
17	416	9.9	10.6	27.2	28.3	33.9	35.3	29.6	30.7	23.1	23.4
18	377	17.8	17.9	33.7	34.2	32.1	32.9	26.0	26.5	23.1	23.7
19	300	11.7	10.6	23.0	22.5	27.3	27.0	22.3	22.4	20.0	19.5
20	208	9.6	9.5	19.2	19.5	18.8	19.2	18.8	18.1	13.5	12.7
21	218	10.1	9.5	16.5	16.1	18.8	18.3	20.2	20.4	17.9	18.6
22	279	3.2	2.8	7.2	7.1	10.0	9.6	8.2	7.3	11.1	11.0
23	283	6.4	6.5	12.7	12.1	15.9	14.1	13.4	12.7	14.5	14.2
24	279	5.4	5.0	8.2	7.7	12.5	12.4	13.3	13.1	15.1	14.1
Blacks											
14	205	1.0	1.0	6.3	7.9	16.1	20.1	22.0	25.8	27.3	30.0
15	212	3.8	5.2	11.8	12.6	22.2	25.4	32.1	36.8	40.6	39.7
16	235	4.3	6.5	18.3	19.2	32.8	35.2	36.2	38.8	37.0	32.0
17	178	9.0	9.5	33.7	32.5	45.5	45.3	41.6	39.4	42.1	41.5
18	134	16.4	16.2	35.1	33.6	32.8	29.8	27.6	23.4	26.1	22.3
19	97	16.5	17.8	26.8	28.4	27.8	26.3	23.7	22.6	22.7	21.8
20	82	11.0	9.3	19.5	16.5	22.0	18.8	18.3	15.7	22.0	18.6
21	74	6.8	7.1	18.9	25.0	16.2	26.3	23.0	34.4	23.0	31.3
22	67	6.0	5.1	17.9	20.0	22.4	17.8	20.9	21.5	26.9	21.7
23	69	7.2	8.1	13.0	12.6	15.9	18.3	11.6	11.7	21.7	19.6
24	80	6.3	6.6	11.3	13.3	17.5	20.6	23.8	27.4	21.3	23.2

Note. U=unweighted data
W=weighted data

been found to score lower on intelligence tests. This difference in IQs will be acknowledged in all further analyses. Table 5.6 does show clearly, however, that attrition does not change the mean IQ in subsequent survey years suggesting that attrition has not biased the sample in regard to IQ. Neither does weighting make any difference.

Insert Table 5.6 About Here

Table 5.7 provides analogous results for father's occupational status. There are no clear cohort differences and attrition does not seem to make a difference. Weighting increases average status by about one point in all groups, but otherwise makes no difference.

Insert Table 5.7 About Here

Finally, Table 5.8 examines correlations among some of the major unchanging variables--father's education, father's status and respondent's IQ. Ideally, the correlations should not differ because of attrition or weighting. Attrition and weighting may make a small difference in some correlations for blacks, but neither makes any appreciable difference for whites. This difference is consistent with attrition rates, because attrition is higher for blacks.

Insert Table 5.8 About Here

In short, neither attrition nor weighting makes any real difference for the analysis of whites, and they may make only a small difference for blacks. Races and ages should be analyzed separately when weights are not used.

Table 5.6
Mean IQ[a] of Men Remaining in the Sample Each Survey Year: By Race and Age in 1966 (Unweighted and Weighted Results)

Age In	1966		1967		1968		1969		1970		1971	
1966	U	W	U	W	U	W	U	W	U	W	U	W
						Whites						
14	6.1	6.2	6.1	6.2	6.1	6.1	6.1	6.2	6.2	6.3	6.2	6.2
15	5.8	5.9	5.8	5.9	5.8	5.9	5.9	6.0	5.9	6.0	5.9	6.0
16	5.5	5.6	5.5	5.5	5.6	5.6	5.6	5.6	5.6	5.6	5.8	5.6
17	5.5	5.5	5.6	5.6	5.8	5.8	5.8	5.8	5.6	5.6	5.5	5.6
18	5.7	5.7	5.8	5.8	5.9	6.0	5.8	5.8	5.6	5.7	5.6	5.7
19	5.7	5.7	5.8	5.8	5.7	5.7	5.6	5.7	5.5	5.6	5.5	5.6
20	5.4	5.4	5.3	5.3	5.2	5.3	5.2	5.3	5.3	5.3	5.3	5.4
21	5.7	5.7	5.6	5.6	5.6	5.6	5.5	5.5	5.5	5.6	5.6	5.7
22	5.3	5.4	5.3	5.3	5.3	5.3	5.4	5.4	5.3	5.3	5.4	5.4
23	5.4	5.4	5.3	5.4	5.3	5.4	5.4	5.4	5.3	5.4	5.4	5.4
24	5.0	5.1	5.0	5.1	5.0	5.1	5.0	5.1	5.1	5.2	5.1	5.2
TOTAL	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
						Blacks						
14	3.5	3.5	3.5	3.5	3.4	3.2	3.5	3.6	3.7	3.6	3.8	3.7
15	3.8	3.8	3.8	3.8	3.8	3.8	3.7	3.7	3.7	3.7	3.9	3.9
16	3.6	3.7	3.6	3.7	3.6	3.7	3.6	3.6	3.7	3.8	3.6	3.6
17	3.4	3.6	3.4	3.6	3.4	3.6	3.4	3.6	3.4	3.6	3.1	3.3
18	3.4	3.5	3.3	3.5	3.3	3.4	3.3	3.6	3.4	3.6	3.3	3.5
19	3.4	3.3	3.3	3.3	3.3	3.3	3.5	3.2	3.3	3.1	3.3	3.1
20	3.2	3.6	3.3	3.6	3.2	3.6	3.2	3.5	3.2	3.6	3.2	3.6
21	3.2	3.7	3.2	3.7	2.9	3.3	3.0	3.6	3.1	3.6	3.0	3.6
22	3.2	3.2	3.2	3.3	3.2	3.3	3.3	3.4	3.0	2.9	3.1	3.1
23	3.6	3.6	3.7	3.8	3.7	3.8	3.6	3.8	3.6	3.6	3.6	3.7
24	3.3	3.2	3.3	3.2	3.4	3.3	3.4	3.3	3.4	3.4	3.5	3.4
TOTAL	3.5	3.5	3.5	3.6	3.5	3.5	3.5	3.5	3.5	3.5	3.4	3.5

Note. u = unweighted data
w = weighted data

[a] Stanine scores.

Table 5.7

Mean Father's Occupational Status of Men
Remaining in the Sample Each Survey Year:
By Race and Age in 1966
(Unweighted and Weighted Results)

Age in 1966	1966		1967		1968		1969		1970		1971	
	U	W	U	W	U	W	U	W	U	W	U	W
						Whites						
14	37.5	38.6	37.7	38.9	38.0	39.1	37.1	39.0	37.8	39.1	38.3	39.4
15	37.3	38.5	37.2	38.4	37.5	38.8	37.7	39.1	38.3	39.5	36.9	38.3
16	37.4	38.7	37.2	38.7	38.0	39.4	38.4	40.0	38.6	39.9	37.9	38.9
17	39.0	40.1	39.4	40.5	40.6	42.0	41.8	43.1	40.8	41.9	40.0	41.2
18	39.1	40.1	39.0	40.0	39.2	39.9	40.0	40.7	39.2	39.6	39.4	40.2
19	37.9	38.8	39.0	39.5	37.7	38.3	36.8	37.3	36.8	37.4	36.6	37.5
20	37.6	38.4	37.3	38.4	35.1	35.9	35.5	36.1	36.1	36.9	36.9	37.6
21	38.3	39.4	38.0	38.7	38.0	38.6	38.2	39.4	38.8	39.8	38.7	39.6
22	38.2	38.6	38.2	38.7	38.4	38.8	37.7	38.1	37.7	38.2	38.4	39.0
23	36.3	36.9	35.8	36.3	35.6	36.0	36.1	36.5	36.7	37.0	36.9	37.3
24	34.8	36.0	34.2	35.4	33.9	35.1	33.3	34.2	34.0	34.9	33.8	34.6
TOTAL	37.6	38.7	37.6	38.6	37.6	38.5	37.7	38.6	37.8	38.7	37.7	38.6
						Blacks						
14	17.7	18.4	17.8	18.5	18.0	18.8	17.6	19.0	17.2	18.7	17.7	19.3
15	15.9	17.9	15.7	17.8	15.4	17.3	15.4	17.6	14.8	16.1	15.2	17.0
16	16.0	16.3	16.0	16.4	16.3	16.4	15.3	15.1	16.1	16.1	15.6	16.3
17	18.2	17.5	18.2	17.5	18.1	17.4	17.2	16.4	18.7	17.6	16.3	15.6
18	17.5	19.1	17.4	19.3	16.7	17.4	16.7	19.4	16.1	18.4	17.0	19.1
19	18.6	17.8	18.7	17.7	19.5	18.3	19.9	18.7	19.0	17.8	18.3	17.2
20	14.5	15.0	15.2	15.6	15.5	15.9	15.3	15.7	15.7	16.0	15.0	15.5
21	16.3	19.2	16.1	19.4	16.3	21.0	16.5	19.8	16.2	19.4	16.7	20.1
22	14.8	13.9	14.8	13.8	13.7	13.4	13.3	12.6	13.5	13.0	13.6	12.8
23	17.2	16.6	16.3	16.2	15.7	15.7	16.2	15.4	16.4	16.1	15.5	15.4
24	18.0	20.8	18.4	21.6	18.1	20.4	18.2	20.1	18.0	19.7	19.1	21.4
TOTAL	16.9	17.6	16.8	17.7	16.8	17.6	16.5	17.4	16.5	17.3	16.4	17.4

Note. u = unweighted data
w = weighted data

Table 5.8
Correlation of Father's Occupation Status
with Father's Education and Respondent's IQ
for Men Remaining in the Sample Each Year:
By Race and Survey Year
(Unweighted and Weighted Results)

Correlation with:	1966		1967		1968		1969		1970		1971	
	U	W	U	W	U	W	U	W	U	W	U	W
Whites												
Father's Education	.55	.56	.55	.56	.55	.56	.56	.57	.56	.56	.57	.57
Respondent's IQ	.26	.25	.27	.25	.27	.26	.28	.26	.27	.25	.27	.25
Blacks												
Father's Education	.33	.35	.34	.37	.32	.36	.35	.39	.36	.41	.36	.40
Respondent's IQ	.17	.14	.18	.14	.18	.14	.17	.14	.19	.18	.18	.16

Note. u = unweighted data
w = weighted data

Chapter 6

STUDYING CHANGE AND DEVELOPMENT

The study of career development usually focuses on discovering the typical patterns of change in career-relevant attributes and behavior that are associated with age or stage in the life cycle. It is--at least with young people--the study of maturation and socialization. Longitudinal studies are particularly useful for studying processes associated with aging or maturation because they follow individual people over some period of time.

But it must be remembered that the changes we see from age group to age group in a longitudinal study may be the result, not only of maturation, but also of differences in environments at the different times of measurement (called period or time effects) and of differences in the course of development experienced by people born at different times (called cohort effects). The typical longitudinal study confounds two or all three of these sources of change. Unfortunately, this is true of the NLS survey as well. In this chapter, I examine whether cohort and time effects are found in the NLS sample. I do not attempt the very complicated task of estimating the relative magnitude of each kind of effect. But, I do provide enough evidence to show that some cohort effects do exist and that we must think about the environmental conditions which produce them and be wary in interpreting all age differences as due solely to maturation.

Cohort and time effects are interesting in their own right, and not simply as factors which make our task of understanding development more difficult. How similar are different generations in their career development, and how will cultural changes affect upcoming generations? How do events such as wars, business cycles, or social movements affect careers at the time they occur, and do they forever alter the course of development for different birth cohorts? These are all interesting questions.

Conditions in the Environment Which May Have Created Time and Cohort Effects

Men in the NLS sample were born in the years 1942 to 1952 and they were interviewed in the years 1966 to 1971. Events occurring during the mid and late 1960's might have exerted considerable influence upon their career development during that period. Events occuring before 1966 may have systematically altered the opportunities or goals of men born in different years and who were thus going through school and into the labor market in different years. I illustrate below some secular trends which create cohort differences. I then review some of the conditions of the survey years which would lead us to expect time and cohort effects as well.

Two of the most important secular trends are that civilian labor force participation rates of males are falling and that educational levels are rising. The fall in participation rates for all men is shown in Figure 6.1 both for whites and for racial minorities. The drop has occurred primarily among older men, making the drop less relevant to this volume. However, Figure 6.2 (which includes only men aged 18-19) suggests that this trend is occurring among young minority men as well. In 1954, participation rates were similar for white and minority 18- to 19-year olds, falling between 70 and 80%. By 1978, however, participation rates for minority men had fallen below 60%.

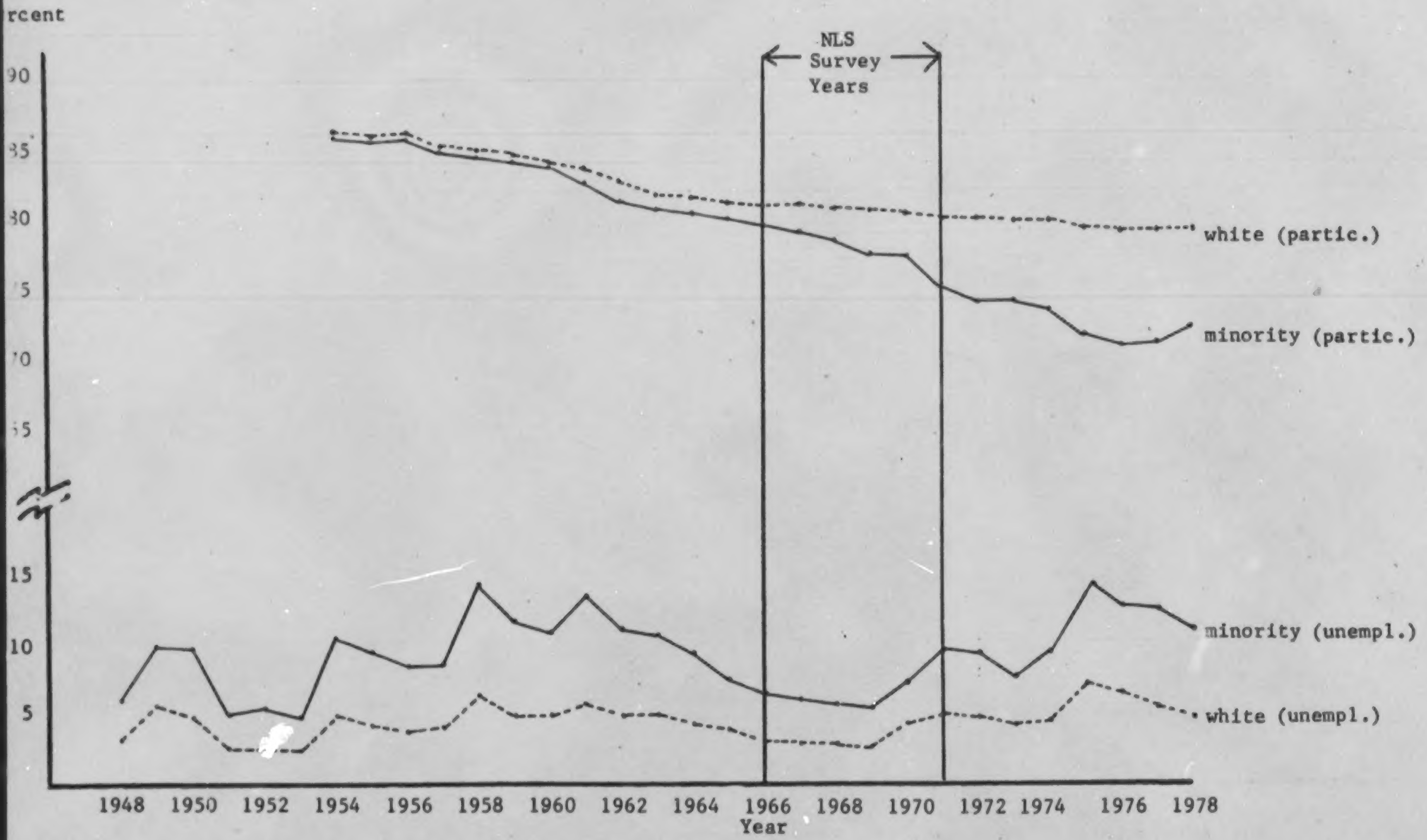
Insert Figures 6.1 and 6.2 About Here

Unemployment rates are alsoshown in Figures 6.1 and 6.2. These rates

Figure 6.1

Labor Force Participation and Unemployment Rates for

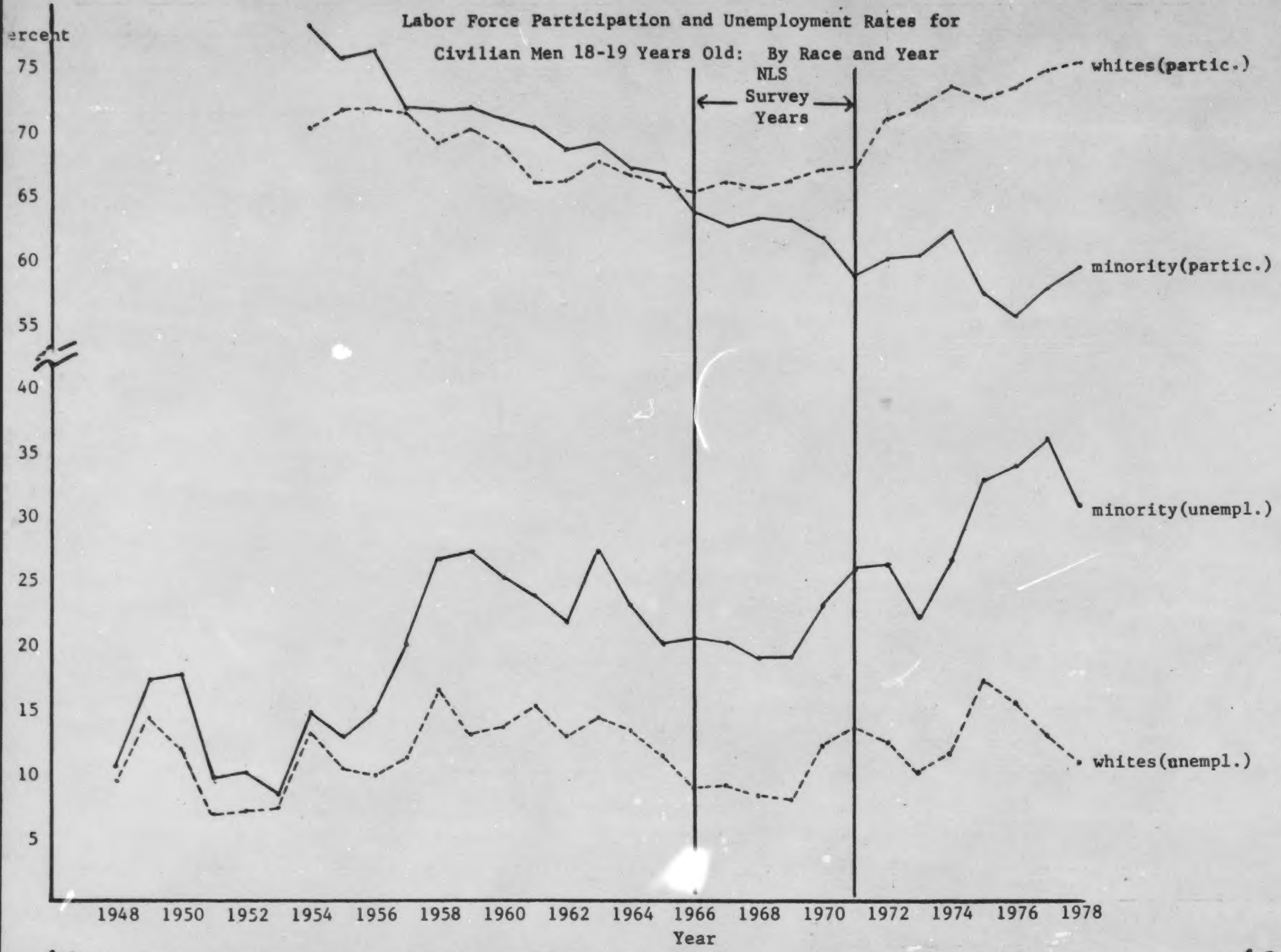
Civilian Men 16 Years and Over: By Race and Year



Source. U.S. Department of Labor (1979, Tables A-4 and A-21).

Figure 6.2

Labor Force Participation and Unemployment Rates for Civilian Men 18-19 Years Old: By Race and Year



13 Source. U.S. Department of Labor (1979, Tables A-4 and A-21).

are more a product of temporary conditions and they generally fluctuate without showing secular trends. Among young minority men, however, it appears that there is a trend for unemployment rates to rise over time. In the 1950's, the rates among 18- to 19-year-old minority men generally remained below 20%; in the 1960's they were generally between 20 and 30%; and in the 1970's they have exceeded 30%. This study deals very little with employment and unemployment rates, but it is good to keep these trends in mind.

A secular change of particular importance to this study is shown in Figure 6.3. This figure shows that median educational levels are rising over time for both white and minority men, but most among minorities. As Figure 6.3 suggests (and as Hauser and Featherman, 1976, show in detail) the educational gap between the races has narrowed considerably. In the NLS data we would therefore expect each successive cohort to be better educated, with the gap between blacks and whites being smaller among the more recent cohorts.

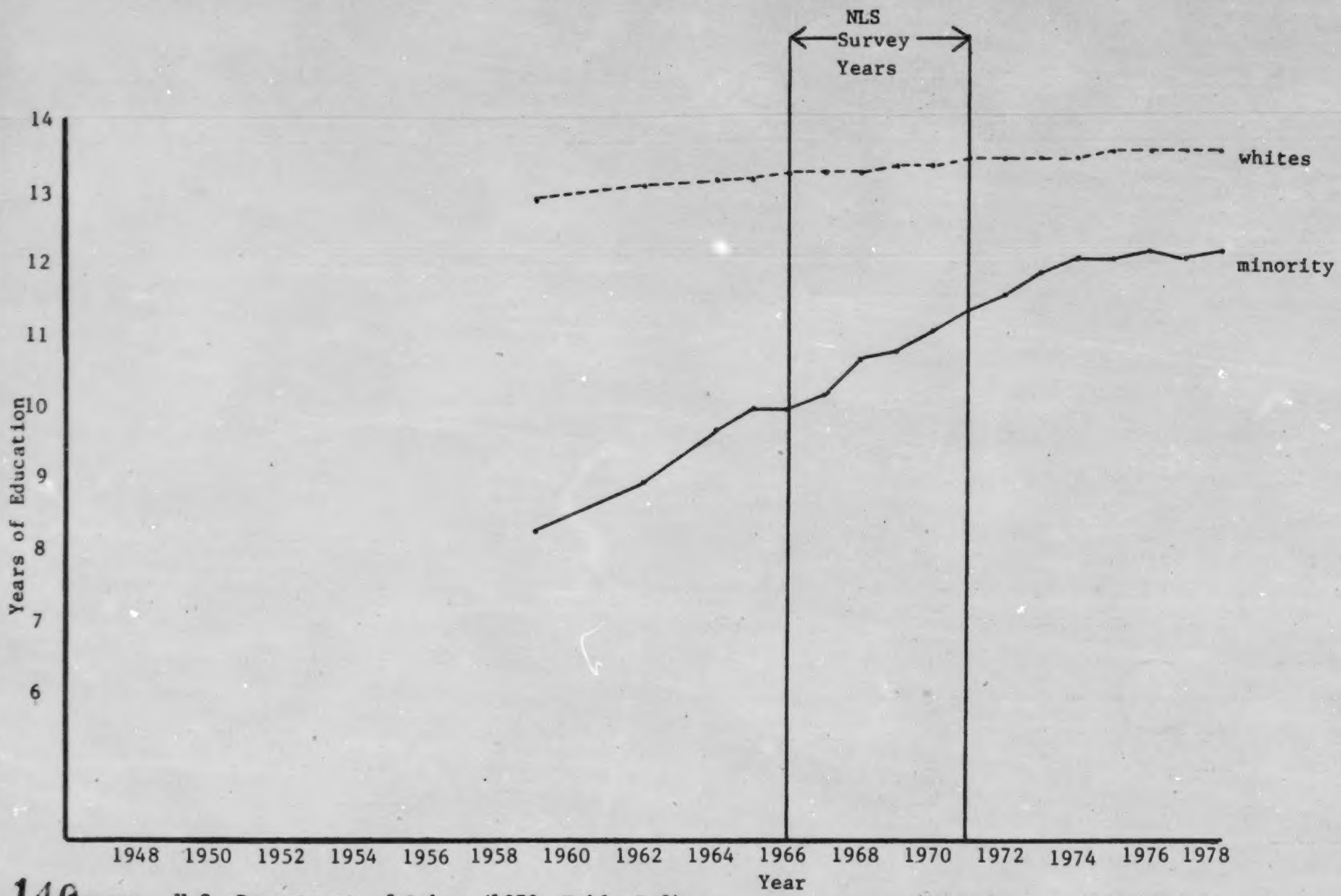
Insert Figure 6.3 About Here

A number of conditions during the survey years would lead us to expect atypical patterns of career development in some survey years. In particular, the survey years were characterized by (a) good economic conditions (which degenerated in the later survey years), (b) a strong civil rights movement, and (c) the Vietnam War.

Figures 6.1 and 6.2 illustrate the good economic conditions prevailing in the early years of the survey. Unemployment rates for whites were very low from 1966 through 1969; they rose in 1970 and 1971 as a recession set in. Unemployment rates also dipped in the 1960's for minority men, though they were about twice as high for minority as for white men. Good economic conditions may mean that opportunities for career advancement were unusually

Figure 6.3

Median Years of Education Completed by Men in the Civilian Labor Force: By Race and Year



Source. U.S. Department of Labor (1979, Table B-9).
Note. Results refer to men 18 and older for 1957-72 and to men 16 and older for 1972-78.

good during most of the survey years. This would limit the generalizability of NLS results to career development during less favorable economic times.

A clearer threat to generalizability was mentioned in the last chapter-the Vietnam War. As already noted, many men were either not included in the sample or were lost later through attrition because of service in the military. Military service--or attempts to escape it--may have induced changes in patterns of career development which would not be found in other times. Kohen and Shields (1977) examined the effects of military service upon the NLS men and concluded that it had no unambiguously positive or negative effects. Many of the men who could have taken advantage of the G.I. Bill did not do so. Analyses of income differences suggested that military service may not have been treated by employers as work experience for whites, but it did seem to benefit blacks. Blacks and whites served in almost equal proportion (26% and 29%) and were drawn disproportionately from moderate SES and ability groups. Immediately after discharge from service, men experienced high levels of unemployment but these disappeared with time. More men rated their period of service as having a positive effect on their later careers than having a negative effect.

Although the civil rights movement might not be expected to have much affect on whites, it may have had considerable effect on the goals and even the attainment of blacks. This possibility is explored in Chapter 11.

The foregoing events may have affected the various NLS age cohorts differently. This can be easily visualized by referring to Table 6.1 which arrays the cohorts according to their ages in different years. We might expect that men who were finishing high school (i.e. the 14-19 year-olds in 1966) and entering the labor market during the survey years to be most permanently affected by the conditions described above, because this transition point is probably quite important in permanently affecting the course of later development. The career course of the oldest cohorts may have already been fairly set by the time the survey started, although prosperous conditions from 1966 to 1969 may have allowed them to advance more quickly than they might otherwise have. Men in their late teens and early twenties in 1966 were entering the labor market during good times, though the younger cohorts probably faced rougher conditions upon their entry because the recession was well under way by 1970-1971. And it is primarily the men aged 14-19 in 1966 who faced military service. We might also expect that blacks who were still in high school or college in the survey years to be most affected by the civil rights movement. Perceptions of opportunities and actual opportunities for higher education and jobs may have improved during the survey years for blacks. Although older men might also have raised their aspirations, it would probably be primarily the younger black men just beginning their careers who could best take advantage of the new educational and career opportunities.

Insert Table 6.1 About Here

Evidence About Cohort Effects

The following tables are devoted to discovering cohort differences--systematic differences in the same age group according to the year the men were born. The tables also provide indications of age and time effects, but little discussion will be devoted here to those effects. Time effects will not be discussed because they are extremely hard to discern. The ups and downs that occur from year to year are often likely to be the result of sampling error rather than real time effects. Age effects are very clear in the data, but later chapters are devoted to a discussion of maturational processes. The object of this section is to get an impression of how large cohort

Table 6.1

The Ages of Each Survey Cohort in Different Years

1942	1944	1946	1948	1950	1952	1954	1956	1958	1960	1962	1964	1966	1968	1970
0	2	4	6	8	10	12	14	16	18	20	22	24	26	28
	1	3	5	7	9	11	13	15	17	19	21	23	25	27
	0	2	4	6	8	10	12	14	16	18	20	22	24	26
		1	3	5	7	9	11	13	15	17	19	21	23	25
		0	2	4	6	8	10	12	14	16	18	20	22	24
			1	3	5	7	9	11	13	15	17	19	21	23
			0	2	4	6	8	10	12	14	16	18	20	22
				1	3	5	7	9	11	13	15	17	19	21
				0	2	4	6	8	10	12	14	16	18	20
					1	3	5	7	9	11	13	15	17	19
					0	2	4	6	8	10	12	14	16	18

differences are. Educational and occupational goals and outcomes are examined.

Two types of tables are presented here, summary tables and the detailed tables from which the summary tables were constructed. Tables 6.2, 6.4, and 6.11 are summary tables; Tables 6.3, 6.5 to 6.10, and 6.12 to 6.15 are detailed tables. The latter will be described first. The original 11 age groups in 1966 (ages 14-24) were surveyed in 6 years (1966-1971). For each of the variables examined (one detailed table is devoted to each variable), mean scores were calculated for each of the age groups in each of the 6 years. Only men who were actually interviewed in the survey year are included in the calculations for that year. These means are then arrayed in the table according to the age the men were in the survey year; hence the diagonal slant to the tables (e.g. see Table 6.3). The same cohort of men can be followed longitudinally by following the diagonals. Different cohorts of men of the same age can be examined by looking across the rows. This is the comparison of interest in this chapter. Cross-sectional differences can be examined by looking at columns. I do not look at cross-sectional differences in this volume, but one can get an idea of how one would be misled by cross-sectional comparisons when asking developmental questions.

The summary tables are made by averaging the entries for specific age groups which are present in all the survey years; ages 19-21 and 22-24. The 22-24 age group represents not only older men in any given year, but also cohorts born in earlier years. Several of the cohorts appear within both the age groups, enabling a few longitudinal comparisons within the summary tables --for example, men who are 19-21 in 1966 are 22-24 in 1969.

Table. 6.2 begins by examining some of the characteristics of the sample -- percentage of cases missing, IQ, and father's status. As noted in Chapter 5, attrition rates rose in later survey years. Table 6.2 shows that comparisons of men in 1966 to men of the same ages in 1971 involve comparing 100% of men in 1966 to only about 70 or 80% of the same age group in 1971. The effect of this attrition upon the IQ and SES composition of the sample was also explored in Chapter 5 and I concluded that it had no appreciable effect. There was however, a cohort difference in IQ. Table 6.2 summarizes those differences. Over the survey years, the mean IQ of whites in the same age group rises because younger cohorts have higher scores. The results for blacks are less clear, although they suggest that the mean IQ of the 22-24 year olds does not rise for younger cohorts. No clear trends in father's status are evident as was discussed in Chapter 5. (The detailed tables for attrition, IQ, and SES are found in Chapter 5.)

Insert Table 6.2 About Here

The final item of Table 6.2--percentage of men whose major activity is working--shows that younger black cohorts less often report work as their major activity. The black rates converge toward those of whites, and may possibly be the result of higher rates of enrollment among younger cohorts. As was shown in the last section, educational levels of blacks are rising faster than those of whites and may indicate that more blacks are remaining out of the labor force to attend school. We cannot rule out the possibility, though, that younger cohorts faced worse economic conditons and so were less able to find work. At any rate, increasingly similar proportions of blacks and whites are represented with younger cohorts when we focus on working men. Table 6.3 provides the more detailed data for this last item. Although the estimates are eratic, they suggest that the drop was greatest for men 19 to 22, college going ages.

Table 6.2

Cohort Differences in Attrition, Father's Status, IQ, and Major Activity: By Race, Age, and Survey Year (Unweighted)

		Whites						Blacks					
Survey Year:		1966	1967	1968	1969	1970	1971	1966	1967	1968	1969	1970	1971
Mean Year of Birth:													
Age	19-21	1946	1947	1948	1949	1950	1951	1946	1947	1948	1949	1950	1951
	22-24	1943	1944	1945	1946	1947	1948	1943	1944	1945	1946	1947	1948
Mean Year When Age 18:													
Age	19-21	1964	1965	1966	1967	1968	1969	1964	1965	1966	1967	1968	1969
	22-24	1961	1962	1963	1964	1965	1966	1961	1962	1963	1964	1965	1966
Percent of cases missing													
	19-21	0.0	13.0	28.0	32.5	28.4	25.6	0.0	14.6	31.9	37.0	36.7	35.0
	22-24	0.0	6.6	14.3	21.6	22.4	22.1	0.0	6.7	18.8	22.0	23.2	30.3
Mean I.Q. (in stanines)													
	19-21	5.6	5.6	5.8	5.7	5.8	6.0	3.3	3.3	3.3	3.4	3.6	3.8
	22-24	5.2	5.4	5.4	5.4	5.5	5.5	3.4	3.4	3.1	3.2	3.3	3.2
Mean Father's Status													
	19-21	37.9	38.4	39.2	40.1	39.2	37.7	16.5	17.1	18.1	16.4	16.5	16.2
	22-24	36.4	37.3	37.2	36.8	37.4	38.7	16.7	15.7	15.2	17.2	16.9	17.2
Percentage of all men whose major activity is working													
	19-21	58.3	56.5	53.5	57.8	59.6	60.9	71.9	70.6	68.7	65.4	65.3	64.8
	22-24	84.7	84.9	82.4	84.2	83.1	81.7	85.7	84.3	85.8	83.1	82.1	80.4

Insert Table 6.3 About Here

Table 6.4 shows the summary results for aspirations and attainments--both educational and occupational. There appear to be cohort differences in all of the variables in this table. From 1966 to 1971, the mean years of education desired by whites rose almost one year--up to almost 15 years. Means for black educational aspirations rose two years--up to almost 14 years. Actual educational attainments also rose, but not as much as aspirations. Part of this difference between aspirations and attainments is because men, particularly the young men, have not completed their education. This can be seen by comparing the 19-21 year olds in 1966 to the 22-24 year olds in 1969; these are the same men. Once again, however, the increases were greater for blacks than for whites, but blacks still trailed by more than a year.

These tables reveal that cohort differences are generally larger than longitudinal differences for educational aspirations. For example, white men 19-21 in 1966 aspired to 14.0 years of education on the average. In 1969, (when they were 22-24) these men aspired to 14.2 years, an average increase of 0.2 years. In 1966, however, men 22-24 (an older cohort of men) aspired to only 13.7 years. The cohort difference between men 22-24 in 1966 and 1969 is 0.5 years. Thus, what might otherwise appear to be increases in aspirations due to maturation, may actually be increases induced in many age groups by environmental conditions. We cannot, of course, rule out the possibility of maturational differences in educational aspirations. For example, men might naturally lower their aspiration with age but this trend could be more than offset by conditions which at least temporarily foster higher aspirations (and thus retard the natural decline men usually experience). Turning to educational attainment, we see that the growth in attainment men experience

Table 6.3

Percentage of All Men Whose Major Activity is Working: By Race, Age, and Survey Year (Unweighted)

Age in	1966		1967		1968		1969		1970		1971	
Survey Year	%	(N)	%	(N)	%	(N)	%	(N)	%	(N)	%	(N)
						Whites						
14	0.2	(476)										
15	3.6	(446)	2.1	(467)								
16	5.6	(448)	5.7	(436)	6.2	(451)						
17	25.7	(416)	21.2	(410)	23.8	(403)	22.9	(424)				
18	33.4	(377)	39.5	(372)	44.9	(363)	40.8	(370)	42.2	(384)		
19	47.3	(300)	45.5	(308)	47.9	(303)	52.6	(306)	51.5	(336)	51.5	(355)
20	55.6	(207)	54.8	(261)	48.0	(250)	54.5	(275)	63.0	(308)	57.4	(331)
21	71.9	(217)	69.1	(188)	64.5	(231)	66.4	(256)	64.2	(293)	73.8	(332)
22	79.9	(279)	77.3	(194)	78.6	(168)	78.0	(218)	76.3	(279)	74.4	(320)
23	85.2	(283)	86.7	(270)	80.2	(182)	85.2	(169)	82.4	(233)	84.8	(290)
24	88.9	(279)	90.7	(259)	88.4	(259)	89.3	(177)	90.5	(169)	85.8	(240)
25			89.6	(260)	92.3	(247)	91.2	(251)	87.9	(174)	85.6	(180)
26					91.8	(256)	93.3	(238)	93.4	(256)	88.3	(179)
27							95.9	(244)	92.2	(245)	91.5	(248)
28									94.6	(242)	96.3	(242)
29											97.0	(237)
						Blacks						
14	2.9	(205										
15	8.1	(211)	4.5	(202)								
16	15.7	(235)	16.3	(203)	10.4	(192)						
17	26.4	(178)	30.2	(222)	31.0	(187)	30.2	(172)				
18	48.5	(134)	52.2	(159)	45.3	(192)	56.1	(164)	43.8	(160)		
19	64.9	(97)	63.0	(108)	57.6	(118)	59.5	(158)	59.0	(144)	57.7	(149)
20	79.3	(82)	65.4	(81)	72.4	(87)	65.6	(96)	68.7	(150)	65.9	(126)
21	71.6	(74)	83.3	(72)	76.1	(71)	71.1	(90)	68.3	(104)	70.9	(148)
22	86.6	(67)	79.1	(67)	86.4	(66)	85.7	(70)	76.3	(97)	74.8	(103)
23	84.1	(69)	86.7	(60)	88.3	(60)	79.7	(64)	87.8	(74)	79.8	(99)
24	86.3	(80)	87.1	(62)	92.7	(55)	83.9	(62)	82.1	(67)	86.7	(75)
25			90.4	(73)	93.3	(60)	90.4	(52)	87.7	(57)	89.1	(64)
26					93.0	(71)	91.4	(58)	86.8	(53)	87.7	(57)
27							93.9	(66)	88.5	(61)	81.6	(49)
28									96.7	(61)	88.9	(54)
29											96.8	(63)

over their lives is underestimated by looking at cross-sectional differences rather than longitudinal differences because cohort differences are large. The cohort differences mean that with each passing year, men are likely to finish their schooling at later and later ages (and thus with higher attainment). Tables 6.5 and 6.6 provide additional details on the cohort differences.

Insert Tables 6.4 to 6.6 About Here

There is no clear cohort trend among whites in occupational status desired but there is among blacks. Black status aspirations were considerably higher in younger cohorts than in older ones. The status of the most recent job is also examined. Although cohort differences in actual attainment do not show up clearly for whites, small differences (increases) occur for both age groups of blacks. It is possible that the slightly higher means among whites in 1967 and 1968 are related to the favorable economic conditions in those years. The increases for blacks may have been more related to the civil rights movement and so have continued through all survey years.

Cohort and maturational differences appear to operate in opposite directions for status aspirations. Younger cohorts have higher aspirations, but with age men (at least white men) lower their aspirations slightly. Increases in status attainment among whites appear to be maturational with little or no cohort effect. In contrast, a substantial amount of the age-related increase in status among blacks may be tied to cohort differences in the environments blacks have faced and which have enabled younger cohorts to advance further. Tables 6.7 and 6.8 provide the detailed results.

Insert Tables 6.7 and 6.8 About Here

The percentages of men whose most recent job was in realistic and in enterprising work are shown at the bottom of Table 6.4. The results show

Table 6.4

Cohort Differences in Aspirations and Attainment: By Race, Age, and Survey Year (Unweighted)

		Whites						Blacks					
Survey Year:		1966	1967	1968	1969	1970	1971	1966	1967	1968	1979	1970	1971
Mean Year of Birth:													
Age	19-21	1946	1947	1948	1949	1950	1951	1946	1947	1948	1949	1950	1951
	22-24	1943	1944	1945	1946	1947	1948	1943	1944	1945	1946	1947	1948
Mean Year When Age 17:													
Age	19-21	1964	1965	1966	1967	1968	1969	1964	1965	1966	1967	1968	1969
	22-24	1961	1962	1963	1964	1965	1966	1961	1962	1963	1964	1965	1966
Mean years of education desired													
	19-21	14.0	14.2	14.8	14.8	14.7	14.6	11.7	12.3	13.5	13.7	13.8	13.8
	22-24	13.7	13.7	14.1	14.2	14.6	14.7	11.6	11.6	12.5	13.1	13.5	13.8
Mean Years of education attained													
	19-21	12.2	12.4	12.5	12.7	12.6	12.5	10.5	10.9	11.1	11.3	11.1	11.1
	22-24	12.5	12.6	12.6	12.7	13.1	13.2	10.5	10.6	10.5	10.8	11.3	11.5
Mean occupational status desired													
	19-21	55.3	57.8	59.3	56.7	56.1	53.1	41.5	43.4	47.4	46.4	49.0	53.1
	22-24	52.9	54.4	53.2	54.7	54.4	53.0	41.8	36.7	38.3	42.6	45.7	47.1
Mean Occupational status attained													
	19-21	28.1	31.4	31.8	29.7	28.5	29.0	18.1	20.2	22.9	23.1	22.7	21.2
	22-24	37.4	39.6	40.7	40.1	41.1	38.7	21.6	22.0	21.9	23.3	26.0	25.5
Percentage of men whose last job was in realistic field													
	19-21	73.8	68.4	66.8	69.2	70.5	70.6	84.7	83.5	79.4	81.6	74.9	78.4
	22-24	59.3	57.0	55.6	54.7	53.5	57.3	84.2	83.9	84.8	80.8	78.0	75.0
Percentage of men whose last job was in enterprising field													
	19-21	8.5	12.1	13.1	11.2	12.8	13.8	4.6	4.1	4.5	5.5	5.9	6.3
	22-24	14.5	16.1	17.4	18.8	19.4	18.7	4.4	2.1	4.4	4.2	7.5	6.7

Table 6.5

Mean Years of Education Desired: By Race, Age, and Survey Year (Unweighted)

Age in Survey Year	1966 X̄	1966 (N)	1967 X̄	1967 (N)	1968 X̄	1968 (N)	1969 X̄	1969 (N)	1970 X̄	1970 (N)	1971 X̄	1971 (N)
Whites												
14	14.8	(473)										
15	14.6	(443)	14.7	(464)								
16	14.4	(443)	14.4	(434)	14.7	(449)						
17	14.4	(410)	14.5	(407)	14.6	(400)	14.7	(422)				
18	14.2	(373)	14.5	(371)	14.5	(359)	14.7	(367)	14.8	(381)		
19	14.4	(294)	14.3	(304)	14.7	(302)	14.5	(299)	14.7	(331)	14.7	(350)
20	14.0	(208)	14.4	(260)	15.1	(248)	14.8	(272)	14.6	(306)	14.6	(329)
21	13.6	(209)	13.9	(187)	14.7	(230)	15.0	(253)	14.7	(290)	14.4	(328)
22	13.9	(276)	13.6	(189)	14.2	(165)	14.5	(216)	14.8	(276)	14.8	(316)
23	13.8	(281)	13.8	(268)	14.0	(181)	14.1	(166)	14.6	(229)	14.9	(287)
24	13.4	(275)	13.8	(256)	14.2	(257)	14.1	(177)	14.3	(168)	14.5	(240)
25			13.4	(258)	14.1	(245)	14.3	(245)	14.2	(172)	14.4	(180)
26					13.6	(255)	14.3	(234)	14.2	(254)	14.4	(178)
27							14.0	(239)	14.4	(244)	14.5	(248)
28									13.9	(242)	14.4	(240)
29											14.0	(237)
Blacks												
14	14.1	(203)										
15	13.5	(212)	14.1	(200)								
16	13.3	(234)	13.3	(202)	14.0	(190)						
17	13.2	(177)	13.3	(221)	13.6	(181)	14.2	(172)				
18	13.0	(132)	13.2	(159)	13.8	(192)	13.3	(162)	14.0	(159)		
19	12.3	(95)	12.8	(108)	13.5	(117)	13.6	(154)	13.2	(143)	14.1	(147)
20	11.4	(81)	12.3	(81)	13.8	(86)	13.7	(95)	14.0	(150)	13.5	(124)
21	11.5	(74)	11.7	(72)	13.3	(70)	13.7	(90)	14.2	(103)	13.8	(146)
22	11.6	(66)	11.4	(67)	12.4	(63)	13.5	(70)	14.0	(96)	13.8	(102)
23	11.9	(69)	11.6	(59)	13.2	(56)	12.9	(61)	13.6	(73)	14.1	(98)
24	11.2	(79)	11.8	(62)	11.9	(54)	12.8	(59)	13.0	(67)	13.6	(75)
25			11.3	(73)	12.8	(58)	12.4	(51)	12.5	(56)	13.0	(64)
26					12.1	(71)	13.0	(56)	12.6	(52)	12.7	(57)
27							12.8	(63)	12.9	(61)	12.8	(49)
28									12.5	(61)	12.6	(53)
29											12.2	(63)

Table 6.6

Mean Years of Education Attained: By Race, Age, and Survey Year (Unweighted)

Age in Survey Year	1966 $\bar{X}$	1966 (N)	1967 $\bar{X}$	1967 (N)	1968 $\bar{X}$	1968 (N)	1969 $\bar{X}$	1969 (N)	1970 $\bar{X}$	1970 (N)	1971 $\bar{X}$	1971 (N)
						Whites						
14	8.2	(476)										
15	9.2	(446)	9.2	(467)								
16	10.1	(448)	10.1	(437)	10.2	(456)						
17	11.0	(416)	11.0	(415)	11.0	(419)	11.1	(425)				
18	11.6	(377)	11.7	(377)	11.7	(394)	11.8	(370)	11.8	(384)		
19	12.1	(300)	12.2	(315)	12.1	(364)	12.3	(307)	12.3	(336)	12.2	(355)
20	12.3	(208)	12.5	(269)	12.7	(299)	12.7	(275)	12.6	(309)	12.6	(331)
21	12.3	(218)	12.5	(190)	12.7	(252)	13.2	(256)	12.8	(293)	12.7	(332)
22	12.5	(279)	12.5	(197)	12.5	(182)	12.9	(218)	13.2	(279)	13.0	(319)
23	12.6	(283)	12.6	(273)	12.5	(195)	12.7	(169)	13.1	(233)	13.3	(290)
24	12.4	(279)	12.7	(264)	12.7	(272)	12.6	(176)	12.9	(169)	13.2	(240)
25			12.5	(268)	12.7	(263)	12.9	(251)	12.8	(173)	13.1	(180)
26					12.5	(264)	12.9	(238)	12.9	(256)	12.9	(178)
27							12.6	(244)	13.0	(245)	13.1	(248)
28									12.7	(242)	13.1	(242)
29											12.7	(242)
						Blacks						
14	7.8	(205)										
15	8.4	(212)	8.7	(202)								
16	9.3	(235)	9.2	(204)	9.6	(195)						
17	10.3	(178)	10.1	(223)	9.9	(197)	10.4	(172)				
18	10.9	(134)	10.8	(162)	10.7	(215)	10.5	(165)	11.0	(160)		
19	10.7	(97)	11.1	(112)	11.0	(145)	11.0	(158)	10.7	(144)	11.3	(149)
20	10.3	(82)	10.9	(83)	11.2	(108)	11.4	(97)	11.1	(150)	10.9	(126)
21	10.5	(74)	10.6	(75)	11.0	(80)	11.5	(90)	11.6	(104)	11.2	(148)
22	10.4	(67)	10.5	(70)	10.6	(74)	11.3	(70)	11.8	(97)	11.4	(103)
23	10.9	(69)	10.4	(63)	10.6	(70)	10.7	(64)	11.2	(73)	11.9	(99)
24	10.1	(80)	10.9	(64)	10.3	(62)	10.4	(62)	10.8	(67)	11.3	(74)
25			10.1	(75)	10.9	(63)	10.5	(52)	10.4	(57)	10.8	(64)
26					10.1	(75)	11.0	(58)	10.4	(53)	10.5	(57)
27							10.3	(66)	10.9	(61)	10.6	(49)
28									10.3	(61)	10.6	(54)
29											10.2	(63)

Table 6.7

Mean Occupational Status Desired:
By Race, Age, and Survey Year
(Unweighted)

Age in Survey Year	1966 X̄	1966 (N)	1967 X̄	1967 (N)	1968 X̄	1968 (N)	1969 X̄	1969 (N)	1970 X̄	1970 (N)	1971 X̄	1971 (N)
Whites												
14	59.6	(346)										
15	57.7	(340)	55.9	(337)								
16	53.6	(351)	55.2	(342)	56.8	(377)						
17	54.5	(341)	54.6	(324)	57.1	(343)	58.6	(340)				
18	56.5	(315)	55.7	(302)	54.4	(311)	56.7	(306)	57.8	(297)		
19	58.2	(245)	59.5	(260)	57.7	(270)	54.2	(259)	57.1	(277)	54.5	(278)
20	55.4	(182)	60.0	(222)	61.4	(221)	56.9	(235)	54.9	(259)	52.7	(266)
21	52.3	(188)	54.0	(168)	58.7	(203)	59.0	(231)	56.3	(251)	52.0	(291)
22	54.9	(238)	56.4	(165)	51.0	(159)	58.4	(193)	56.1	(236)	51.9	(263)
23	54.7	(250)	52.8	(223)	54.1	(167)	51.5	(153)	55.5	(190)	52.6	(248)
24	49.2	(249)	54.1	(221)	54.4	(235)	54.3	(159)	51.6	(155)	54.6	(206)
25			50.3	(220)	51.9	(231)	54.8	(220)	54.1	(151)	51.5	(164)
26					50.4	(233)	51.6	(217)	52.6	(229)	51.6	(162)
27							49.4	(225)	51.2	(222)	50.4	(230)
28									49.9	(216)	50.2	(226)
29											47.1	(216)
Blacks												
14	51.5	(155)										
15	50.3	(161)	50.3	(165)								
16	45.2	(197)	47.8	(153)	52.4	(158)						
17	47.4	(132)	43.9	(189)	48.2	(153)	51.2	(143)				
18	49.1	(103)	45.4	(121)	45.0	(164)	48.5	(134)	52.3	(134)		
19	41.8	(74)	43.4	(80)	46.7	(105)	47.2	(129)	48.3	(99)	50.8	(116)
20	38.4	(67)	44.8	(60)	[illegible]	(74)	45.6	(81)	47.2	(110)	47.2	(92)
21	44.2	(52)	42.1	(51)	49.9	(60)	46.5	(76)	51.4	(79)	42.8	(118)
22	42.4	(51)	41.0	(51)	42.4	(51)	46.2	(60)	49.6	(84)	48.4	(78)
23	42.3	(55)	34.0	(47)	38.0	(55)	42.6	(51)	45.1	(59)	47.1	(87)
24	40.7	(61)	35.0	(47)	34.6	(47)	38.9	(57)	42.3	(48)	45.9	(51)
25			41.4	(59)	38.6	(53)	36.2	(45)	43.0	(46)	42.5	(46)
26					40.5	(59)	38.9	(52)	39.1	(43)	38.9	(46)
27							43.4	(54)	37.8	(53)	38.6	(41)
28									42.3	(51)	35.0	(49)
29											42.3	(53)

Table 6.8

Mean Occupational Status of Current or Last Job: By Race, Age, and Survey Year (Unweighted)

Age in Survey Year	1966		1967		1968		1969		1970		1971	
	X̄	(N)	X̄	(N)	X̄	(N)	X̄	(N)	X̄	(N)	X̄	(N)
					Whites							
14	16.5	(293)										
15	18.2	(326)	16.5	(371)								
16	16.8	(387)	18.0	(381)	17.7	(415)						
17	21.0	(392)	21.4	(390)	21.6	(388)	20.8	(401)				
18	24.1	(364)	24.8	(349)	21.7	(355)	25.2	(356)	23.9	(364)		
19	26.7	(293)	26.4	(293)	28.0	(294)	24.9	(300)	27.5	(327)	26.5	(344)
20	28.0	(204)	33.9	(250)	31.3	(247)	29.2	(259)	28.0	(305)	29.7	(325)
21	29.6	(211)	33.9	(184)	36.0	(225)	35.1	(250)	30.1	(285)	30.9	(331)
22	37.3	(274)	36.0	(185)	38.5	(168)	38.6	(210)	39.0	(276)	32.5	(315)
23	38.1	(278)	41.0	(261)	40.1	(179)	39.8	(164)	42.2	(229)	41.0	(289)
24	36.8	(274)	41.7	(255)	43.4	(254)	41.8	(175)	42.2	(166)	42.7	(238)
25			40.1	(249)	44.0	(247)	44.4	(248)	41.3	(172)	43.2	(180)
26					42.1	(251)	44.2	(236)	44.6	(252)	43.9	(179)
27							41.8	(240)	45.1	(242)	44.2	(248)
28									42.3	(239)	47.6	(241)
29											44.6	(236)
					Blacks							
14	12.8	(118)										
15	12.8	(153)	14.3	(163)								
16	14.0	(205)	13.7	(183)	16.3	(172)						
17	16.7	(159)	17.6	(208)	15.7	(182)	20.7	(163)				
18	17.6	(126)	17.0	(152)	18.6	(189)	19.9	)160)	21.4	(151)		
19	18.7	(93)	20.1	(106)	20.7	(117)	21.5	(152)	19.9	(139)	20.3	(148)
20	16.1	(79)	21.1	(78)	22.8	(87)	23.1	(92)	23.5	(145)	19.6	(123)
21	19.5	(71)	19.4	(71)	25.1	(68)	24.7	(83)	24.6	(99)	23.7	(146)
22	20.8	(64)	21.5	(64)	19.5	(65)	27.7	(68)	25.8	(96)	24.9	(101)
23	20.8	(68)	21.9	(59)	23.4	(58)	19.1	(62)	29.4	(72)	23.4	(99)
24	23.1	(78)	22.5	(61)	22.7	(55)	23.0	(59)	22.8	(66)	28.2	(74)
25			24.9	(72)	22.3	(60)	23.6	(52)	22.6	(53)	22.1	(64)
26					24.0	(71)	24.5	(56)	22.9	(52)	23.4	(54)
27							25.8	(65)	25.5	(59)	24.3	(48)
28									25.9	(61)	22.6	(53)
29											25.3	(63)

that younger cohorts of blacks less often report that their most recent job was in the realistic field; no clear trend is observed for whites in realistic work. Both races, however, show cohort differences in the proportion of men whose last job was in the enterprising field. G. Gottfredson and Daiger (1977) have also found that more recent cohorts are more often employed in enterprising work.

Age differences are larger than cohort differences among whites indicating that most of the increase in enterprising work and the decrease in realistic work is maturational. Once again, among blacks, however, the maturational changes may have been enabled by cohort changes because the 19-21 and the 22-24 age groups are quite similar and longitudinal differences are no larger than cohort differences. Tables 6.9 and 6.10 provide detailed results.

Insert Tables 6.9 and 6.10 About Here

The foregoing tables revealed cohort differences; younger cohorts are better educated, want higher levels of education and status, and they more often work in enterprising work (which previous chapters showed to be relatively high-paying work). But the results also showed that there are cohort differences in IQ. Thus, some of the differences in aspirations and attainments could reflect this difference in IQ and not a difference in the environments these men have experienced. This seems unlikely because black aspirations and attainments changed most, but there were no clear IQ differences among the black cohorts. In addition, the IQ differences among whites did not seem to be translated into occupational attainment differences. Nevertheless, the next five tables examine the possibility that cohort differences might disappear if IQ and SES were controlled.

Table 6.9

Percentage of Men Whose Current or Last Job Was in the Realistic Field of Work: By Race, Age, and Survey Year (Unweighted)

Age in Survey Year	1966 %	1966 (N)	1967 %	1967 (N)	1968 %	1968 (N)	1969 %	1969 (N)	1970 %	1970 (N)	1971 %	1971 (N)
Whites												
14	76,5	(293)										
15	76.4	(326)	83,8	(371)								
16	86,3	(387)	80.8	(381)	84,1	(416)						
17	84.2	(392)	80,1	(391)	80,9	(388)	81.6	(402)				
18	79.4	(364)	76,5	(349)	84.2	(355)	72,8	(356)	78,8	(364)		
19	76.5	(293)	73,8	(294)	72.6	(296)	77,7	(301)	70.6	(327)	75,4	(345)
20	73.0	(204)	64,0	(250)	66.8	(247)	69,1	(259)	71.5	(305)	67,5	(326)
21	72.0	(211)	67.4	(184)	61.1	(226)	60,8	(250)	69.5	(285)	68,9	(331)
22	60.7	(275)	61,3	(186)	60.1	(168)	54,3	(210)	57.4	(277)	65,7	(315)
23	54.7	(278)	56.7	(261)	55.9	(179)	55.5	(164)	50.7	(229)	55,0	(289)
24	62.4	(274)	52.9	(255)	50,8	(254)	54.3	(175)	52,4	(166)	51.3	(238)
25			57.8	(249)	51.8	(247)	47.8	(249)	54.1	(172)	50.6	(180)
26					57.4	(251)	51,3	(236)	48.4	(252)	50,8	(179)
27							55.2	(241)	48,3	(242)	50.0	(248)
28									54.4	(239)	44.0	(241)
29											53.4	(236)
Blacks												
14	83.1	(118)										
15	90.8	(153)	87.1	(163)								
16	90,2	(205	92.9	(183)	87.2	(172)						
17	83.0	(159)	87,0	(208)	90.1	(182)	81,6	(163)				
18	87.3	(126)	89,5	(152)	87.3	(189)	86,3	(160)	81.5	(151)		
19	78,5	(93)	84.9	(106)	77,8	(117)	77.6	(152)	79,9	(139)	79.1	(148)
20	92,4	(79)	78.2	(78)	83.9	(187)	80.4	(92)	75.2	(145)	81.3	(123)
21	83,1	(71)	87.3	(71)	76,5	(68)	86,7	(83)	69,7	(99)	74,7	(146)
22	87,5	(64)	80,0	(65)	86.2	(65)	72.1	(68)	77.1	(96)	76.2	(101)
23	88,2	(68)	81.4	(59)	81,0	(58)	85,5	(62)	75,0	(72)	75,8	(99)
24	76,9	(78)	[illegible]0,2	(61)	87,3	(55)	84,7	(59)	81,8	(66)	73.0	(74)
25			[illegible]3,3	(72)	88,3	(60)	82,7	(52)	83,0	(53)	84.4	(64)
26					77,5	(71)	83.9	(56)	84,6	(52)	77,8	(54)
27							78,5	(65)	83,1	(59)	83,7	(49)
28									75,4	(61)	86,8	(53)
29											69,8	(63)

Table 6.10

Percentage of Men Whose Current or Last Job was in the Enterprising Field of Work: By Race, Age, and Survey Year (Unweighted)

Age in Survey Year	1966 %	1966 (N)	1967 %	1967 (N)	1968 %	1968 (N)	1969 %	1969 (N)	1970 %	1970 (N)	1971 %	1971 (N)
						Whites						
14	20.1	(293)										
15	15.6	(326)	12.4	(371)								
16	9.0	(387)	11.5	(381)	9.6	(416)						
17	7.1	(392)	9.0	(391)	8.5	(388)	9.7	(402)				
18	10.2	(364)	8.9	(349)	6.2	(355)	10.7	(356)	9.9	(364)		
19	5.8	(293)	11.9	(294)	11.5	(296)	8.3	(301)	14.7	(327)	11.9	(345)
20	10.8	(204)	12.0	(250)	14.2	(247)	11.6	(259)	13.1	(305)	15.3	(326)
21	9.0	(211)	12.5	(184)	13.7	(226)	13.6	(250)	10.5	(285)	14.2	(331)
22	14.9	(275)	11.8	(186)	14.3	(168)	18.1	(210)	15.9	(277)	14.9	(315)
23	15.5	(278)	16.9	(261)	15.6	(179)	18.9	(164)	22.3	(229)	19.7	(289)
24	13.1	(274)	19.6	(255)	22.4	(254)	19.4	(175)	19.9	(166)	26.5	(238)
25			15.7	(249)	19.4	(247)	22.1	(249)	20.9	(172)	22.8	(180)
26					18.3	(251)	22.5	(236)	22.6	(252)	21.8	(179)
27							19.6	(241)	25.6	(242)	23.0	(248)
28									21.8	(239)	29.0	(241)
29											20.8	(236)
						Blacks						
14	14.4	(118)										
15	5.9	(153)	9.2	(163)								
16	4.4	(205)	5.5	(183)	5.8	(172)						
17	6.9	(159)	6.3	(208)	3.3	(182)	6.7	(163)				
18	4.0	(126)	2.0	(152)	4.8	(184)	3.1	(160)	7.9	(151)		
19	4.3	(93)	2.8	(106)	4.3	(117)	5.3	(152)	3.6	(139)	6.8	(148)
20	3.8	(79)	3.8	(78)	3.4	(87)	6.5	(92)	6.9	(145)	2.4	(123)
21	5.6	(71)	5.6	(71)	5.9	(68)	4.8	(83)	7.1	(99)	9.6	(146)
22	0.0	(64)	3.1	(65)	6.2	(65)	4.4	(68)	9.4	(96)	2.0	(101)
23	2.9	(68)	1.7	(59)	5.2	(58)	6.5	(62)	6.9	(72)	10.1	(99)
24	10.3	(78)	1.6	(61)	1.8	(55)	1.7	(59)	6.1	(66)	8.1	(74)
25			4.2	(72)	5.0	(60)	1.9	(52)	5.7	(53)	7.8	(64)
26					5.6	(71)	0.0	(56)	0.0	(52)	5.6	(54)
27							9.2	(65)	1.7	(59)	4.1	(49)
28									9.8	(61)	0.0	(53)
29											12.7	(63)

Tables 6.11 to 6.15 are analogous to Tables 6.4 to 6.8. The difference is that the new tables include only men of moderate level IQ and low SES. Moderate IQ actually refers to men who are estimated to fall between the 24th and 60th percentiles (i.e. it includes IQ stanines 4 and 5). Low SES refers to the father's status falling between Duncan SEI scores of 0 and 29 when the respondent was 14 years old. These tables do not change the conclusions drawn from the earlier tables about cohort differences. Educational goals and attainment are higher among younger cohorts, particularly among blacks. Status aspirations and attainments are also up, but only for blacks. These tables do provide some interesting new information, about racial differences, however. When IQ and SES are controlled, racial differences decrease or are reversed. Cohort changes result in racial differences in status attainment disappearing among the younger cohorts. Racial differences in educational goals and attainment and in status aspirations increase among younger cohorts, however. The gap widened because (a) in the older cohorts, blacks had slightly higher goals and educational attainment, and (b) over time blacks appear to have raised their aspirations more than whites. These cohort and racial differences are explored in Chapter 11.

Insert Tables 6.11 to 6.15 About Here

Table 6.11

Cohort Differences in Aspirations and Attainments of Moderate-IQ, Low-SES Men: By Race, Age, and Survey Year

	Whites						Blacks					
Survey Year:	1966	1967	1968	1969	1970	1971	1966	1967	1968	1969	1970	1971
Mean Year of Birth:												
Age 19-21	1946	1947	1948	1949	1950	1951	1946	1947	1948	1949	1950	1951
22-24	1943	1944	1945	1946	1947	1948	1943	1944	1945	1956	1947	1948
Mean Year When Age 18:												
Age 19-21	1964	1965	1966	1967	1968	1969	1964	1965	1966	1967	1968	1969
22-24	1961	1962	1963	1964	1965	1966	1961	1962	1963	1964	1965	1966
Mean years of education desired												
19-21	13.5	13.5	14.1	13.9	13.8	13.6	14.6	14.7	15.5	14.7	15.0	15.8
22-24	13.1	13.3	13.7	13.7	13.7	13.9	13.0	13.8	14.9	14.7	14.9	15.1
Mean years of education attained												
19-21	12.0	12.2	12.4	12.4	12.1	12.0	12.4	12.6	12.6	12.4	12.3	12.9
22-24	12.2	12.3	12.3	12.5	12.4	12.6	12.0	12.4	12.7	12.8	13.2	12.9
Mean occupational status desired												
19-21	46.5	47.9	51.7	45.0	46.9	47.2	59.6	65.1	55.2	52.0	59.4	63.3
22-24	43.7	47.5	45.4	46.8	44.4	42.8	48.2	50.3	57.5	54.1	52.4	63.0
Mean occupational status attained												
19-21	24.2	28.4	27.5	26.7	27.7	28.1	20.9	23.6	31.3	28.8	27.1	28.3
22-24	31.7	30.5	34.3	33.1	32.5	31.2	22.9	24.7	32.9	30.1	31.1	31.6

Table 6.12

Years of Education Desired By Moderate-IQ, Low-SES Men: By Race, Age, and Survey Year (Unweighted)

Age in Survey Year	Survey Year											
	1966		1967		1968		1969		1970		1971	
	X	(N)	X	(N)	X	(N)	X	(N)	X	(N)	X	(N)
						Whites						
14	14.2	(26)										
15	13.5	(56)	13.9	(26)								
16	13.8	(73)	13.6	(56)	13.8	(26)						
17	14.0	(64)	13.7	(70)	13.1	(50)	14.3	(24)				
18	13.5	(52)	14.0	(55)	13.6	(56)	13.5	(44)	14.5	(21)		
19	13.9	(44)	13.3	(43)	14.0	(42)	13.2	(41)	13.6	(37)	14.2	(18)
20	13.4	(31)	13.8	(35)	14.3	(35)	14.3	(34)	13.5	(42)	13.2	(42)
21	13.1	(27)	13.3	(26)	13.9	(32)	14.1	(37)	14.3	(47)	13.5	(49)
22	13.0	(41)	13.3	(27)	13.3	(25)	13.6	(30)	14.0	(44)	13.8	(52)
23	13.1	(47)	13.0	(41)	14.1	(25)	13.1	(27)	13.7	(34)	14.3	(46)
24	13.2	(39)	13.5	(46)	13.6	(40)	14.3	(26)	13.4	(29)	13.6	(34)
25			13.4	(37)	13.6	(44)	13.5	(38)	14.3	(25)	12.9	(28)
26					13.2	(38)	13.7	(43)	13.3	(41)	14.3	(23)
27							13.5	(38)	13.9	(42)	13.6	(38)
28									13.6	(37)	13.9	(42)
29											13.3	(35)
						Blacks						
14	15.4	(9)										
15	14.9	(33)	14.7	(9)								
16	14.2	(32)	14.9	(30)	15.6	(7)						
17	14.3	(32)	14.7	(30)	14.8	(29)	16.6	(9)				
18	14.1	(18)	14.3	(29)	14.8	(27)	15.6	(20)	16.3	(8)		
19	15.1	(11)	14.7	(13)	15.1	(18)	14.2	(22)	15.6	(20)	16.3	(7)
20	14.0	(6)	15.4	(10)	15.4	(12)	14.8	(13)	14.7	(22)	16.3	(19)
21	14.6	(5)	14.0	(6)	15.9	(8)	15.1	(14)	14.7	(18)	14.7	(21)
22	13.3	(6)	14.6	(5)	15.2	(4)	15.9	(10)	15.4	(17)	14.8	(16)
23	12.7	(7)	14.0	(5)	14.8	(4)	14.8	(4)	15.1	(9)	15.5	(15)
24	13.1	(10)	12.7	(7)	14.8	(5)	13.5	(2)	14.2	(5)	15.1	(9)
25			14.0	(10)	13.4	(7)	14.4	(5)	11.5	(2)	15.2	(5)
26					15.4	(10)	13.0	(6)	14.0	(5)	13.7	(3)
27							16.3	(9)	13.4	(7)	14.0	(6)
28									15.6	(9)	12.4	(7)
29											15.4	(9)

Table 6.13

Mean Years of Education Attained by Moderate-IQ, Low-SES Men: By Race, Age, and Survey Year (Unweighted)

Age in Survey Year	Survey Year					
	1966	1967	1968	1969	1970	1971
	$\bar{X}$ (N)	$\bar{X}$ (N)	$\bar{X}$ (N)	$\bar{X}$ (N)	$\bar{X}$ (N)	$\bar{X}$ (N)
			Whites			
14	9.0 (26)					
15	9.3 (56)	10.0 (26)				
16	10.2 (74)	10.1 (56)	10.9 (26)			
17	11.2 (66)	11.1 (71)	10.9 (53)	11.7 (24)		
18	11.8 (52)	11.8 (57)	11.6 (66)	11.5 (45)	12.0 (22)	
19	12.0 (44)	12.2 (46)	12.2 (55)	11.9 (42)	11.8 (37)	12.3 (18)
20	11.8 (31)	12.4 (35)	12.5 (45)	12.6 (35)	12.0 (43)	11.8 (42)
21	12.3 (28)	11.9 (27)	12.5 (34)	12.7 (37)	12.6 (47)	12.0 (49)
22	12.0 (42)	12.6 (28)	11.9 (27)	12.5 (30)	12.8 (44)	12.6 (53)
23	12.3 (47)	12.1 (42)	12.7 (28)	11.9 (28)	12.5 (35)	12.8 (46)
24	12.2 (39)	12.3 (46)	12.2 (42)	13.0 (26)	12.0 (29)	12.5 (34)
25		12.3 (38)	12.5 (46)	12.3 (39)	13.0 (26)	11.9 (28)
26			12.3 (38)	12.4 (43)	12.3 (41)	13.2 (24)
27				12.3 (38)	12.4 (42)	12.3 (38)
28					12.5 (37)	12.3 (42)
29						12.5 (35)
			Blacks			
14	8.9 (9)					
15	9.5 (33)	9.8 (9)				
16	10.2 (32)	10.5 (31)	10.7 (9)			
17	11.0 (32)	11.1 (31)	11.2 (31)	11.7 (9)		
18	11.6 (18)	11.6 (29)	11.8 (30)	12.2 (20)	12.4 (8)	
19	12.5 (11)	11.9 (13)	11.9 (23)	12.2 (23)	12.5 (20)	13.1 (7)
20	12.3 (6)	13.1 (10)	12.3 (13)	12.4 (14)	12.4 (22)	13.2 (19)
21	12.4 (5)	12.7 (6)	13.5 (10)	12.5 (14)	12.0 (18)	12.4 (21)
22	12.0 (6)	12.6 (5)	12.8 (6)	13.9 (10)	12.8 (17)	12.1 (16)
23	12.1 (7)	12.4 (5)	12.8 (5)	13.0 (4)	13.8 (9)	12.9 (15)
24	11.9 (11)	12.1 (7)	12.6 (5)	11.5 (2)	13.0 (5)	13.8 (9)
25		12.4 (10)	12.1 (7)	12.8 (5)	12.0 (2)	13.0 (5)
26			12.5 (10)	12.1 (7)	12.6 (5)	13.0 (3)
27				12.5 (10)	12.1 (7)	12.7 (6)
28					12.6 (9)	12.1 (7)
29						12.7 (9)

Table 6.14

Mean Occupational Status Desired by Moderate-IQ, Low-SES Men: By Race, Age and Survey Year (Unweighted)

Age in	1966		1967		1968		1969		1970		1971	
Survey Year	X̄	(N)	X̄	(N)	X̄	(N)	X̄	(N)	X̄	(N)	X̄	(N)
					Whites							
14	40.8	(17)										
15	46.6	(43)	52.2	(18)								
16	45.3	(59)	41.9	(43)	47.2	(22)						
17	47.1	(60)	48.9	(59)	46.4	(43)	56.3	(21)				
18	45.1	(45)	40.5	(45)	46.6	(47)	46.0	(38)	65.2	(16)		
19	45.3	(37)	49.1	(37)	51.7	(38)	41.3	(38)	45.5	(31)	51.1	(13)
20	46.0	(28)	47.4	(29)	52.0	(31)	47.5	(32)	47.1	(37)	42.9	(33)
21	48.2	(25)	47.1	(25)	51.4	(24)	46.1	(32)	48.1	(43)	47.7	(42)
22	48.2	(38)	52.3	(24)	42.7	(24)	45.5	(25)	45.6	(39)	43.3	(44)
23	45.6	(43)	44.9	(35)	46.9	(25)	47.6	(25)	45.5	(26)	42.6	(38)
24	37.2	(32)	45.3	(41)	46.6	(39)	47.4	(23)	42.2	(26)	42.6	(31)
25			38.6	(29)	46.1	(38)	46.2	(36)	45.3	(21)	41.1	(28)
26					42.7	(37)	48.8	(39)	45.2	(39)	46.8	(20)
27							38.6	(35)	43.7	(40)	40.0	(35)
28									36.1	(36)	40.0	(40)
29											36.4	(33)
					Blacks							
14	66.6	(8)										
15	62.6	(27)	64.3	(7)								
16	51.9	(29)	61.0	(24)	64.7	(7)						
17	55.7	(23)	54.5	(27)	59.9	(27)	73.4	(7)				
18	61.2	(16)	59.5	(23)	55.8	(25)	62.9	(18)	82.7	(6)		
19	70.1	(9)	59.0	(11)	53.0	(17)	49.1	(20)	63.3	(15)	79.5	(4)
20	49.2	(5)	68.4	(8)	56.2	(12)	49.5	(13)	50.4	(17)	62.8	(13)
21	59.4	(5)	67.8	(4)	56.5	(8)	57.5	(13)	64.6	(16)	47.6	(18)
22	48.7	(6)	56.3	(3)	65.0	(4)	56.6	(9)	61.3	(16)	66.6	(14)
23	39.8	(5)	54.0	(4)	56.2	(4)	55.3	(3)	49.4	(7)	60.7	(15)
24	56.0	(10)	40.7	(3)	51.4	(5)	50.5	(2)	46.5	(2)	61.6	(5)
25			54.1	(9)	57.5	(6)	58.0	(5)	33.0	(1)	38.3	(3)
26					52.9	(8)	34.4	(5)	43.4	(11)	64.3	(3)
27							62.6	(7)	43.2	(4)	45.2	(9)
28									63.9	(7)	45.0	(6)
29											66.0	(9)

Table 6.15

Mean Occupational Status of Current or Last Job Among Moderate-IQ, Low-SES Men: By Race, Age, and Survey Year (Unweighted)

Age in Survey Year	Survey Year											
	1966		1967		1968		1969		1970		1971	
	$\bar{X}$	(N)	$\bar{X}$	(N)	$\bar{X}$	(N)	$\bar{X}$	(N)	$\bar{X}$	(N)	$\bar{X}$	(N)
	Whites											
14	12.4	(17)										
15	12.6	(44)	14.2	(23)								
16	15.3	(63)	15.6	(52)	14.8	(23)						
17	19.1	(63)	22.2	(68)	19.8	(49)	19.9	(24)				
18	18.4	(51)	20.9	(53)	22.4	(57)	23.5	(44)	26.3	(22)		
19	28.0	(43)	22.1	(44)	28.4	(40)	26.4	(42)	26.8	(36)	25.4	(18)
20	22.0	(30)	29.3	(34)	25.3	(35)	27.1	(33)	30.3	(43)	28.1	(42)
21	22.6	(28)	33.9	(26)	28.7	(32)	26.7	(37)	26.1	(47)	30.8	(49)
22	32.6	(42)	22.7	(27)	29.0	(26)	33.3	(30)	31.4	(42)	27.2	(53)
23	33.9	(47)	32.3	(41)	37.7	(24)	30.6	(27)	34.1	(35)	32.4	(46)
24	28.5	(39)	36.5	(46)	36.1	(39)	35.4	(26)	32.1	(27)	34.0	(34)
25			29.7	(37)	37.0	(44)	38.5	(39)	32.3	(24)	31.0	(28)
26					34.6	(38)	40.7	(43)	38.0	(41)	39.9	(24)
27							33.3	(38)	38.4	(42)	34.8	(38)
28									29.2	(37)	39.8	(42)
29											32.1	(35)
	Blacks											
14	13.5	(6)										
15	16.9	(26)	19.0	(6)								
16	13.9	(28)	17.2	(29)	21.4	(5)						
17	21.4	(29)	17.3	(27)	21.7	(29)	38.9	(8)				
18	16.1	(16)	21.9	(28)	18.6	(27)	27.4	(19)	26.6	(7)		
19	26.8	(11)	19.1	(13)	26.3	(18)	26.4	(22)	33.2	(19)	22.1	(7)
20	20.0	(6)	28.0	(10)	30.0	(12)	35.7	(11)	22.0	(22)	31.4	(18)
21	15.8	(5)	23.8	(6)	37.5	(8)	24.4	(13)	26.1	(16)	31.3	(21)
22	19.5	(6)	19.2	(5)	17.5	(4)	50.4	(9)	29.6	(16)	24.1	(15)
23	19.3	(7)	33.0	(5)	38.8	(4)	28.5	(4)	43.8	(9)	24.3	(15)
24	29.8	(11)	22.0	(7)	42.4	(5)	11.5	(2)	19.8	(5)	46.3	(9)
25			28.3	(9)	26.6	(7)	47.6	(5)	11.5	(2)	29.8	(5)
26					32.4	(10)	21.3	(7)	25.4	(11)	50.0	(3)
27							34.5	(10)	28.3	(7)	21.5	(6)
28									39.6	(9)	19.0	(7)
29											32.6	(9)

Chapter 7

EMPLOYMENT PATTERNS: WHERE DO MEN END UP?

This chapter examines the employment patterns of men of different ages. The discussion begins by showing how many men are employed or going to school and then by examining the kinds of work they do if they are employed. Descriptions are provided separately for blacks and whites. They provide some idea about the modal patterns of development with age. The last analysis of the chapter is designed to reveal which types of work are entry level jobs and which jobs serve as stepping stones to other jobs. This analysis uses only data from whites because there are not enough blacks for such a detailed analysis. The analyses to follow describe one aspect of career development as defined in Chapter 3--histories of status level and field of employment by age. Later chapters examine the other components of career development--the history of aspirations for field and level and how they relate to jobs actually held.

Method

This chapter deals exclusively with developmental differences, that is, differences associated with age and not with time of birth or survey. Seven age groups are examined: ages 16, 18, 20, 22, 24, 26, 28. Men were examined without regard to which year it was that they were a particular age. For example, the jobs of men aged 18 in *any* year were compared to the jobs of men aged 20 in any year regardless of the survey year during which this information was obtained. This means that each man could be classified into as many as, but not more than, three of the age groups examined here. This procedure assumes that cohort differences (for example, differences between men aged 20 in 1966 and men aged 20 in 1971) are negligible during the five-year period. The previous chapter showed that there are indeed cohort differences, so the descriptions of development by age in this chapter are somewhat confounded with cohort differences. This limitation is not as serious as it might seem. First of all, the data are not as misleading as those from pure cross-sectional analyses would be, because more than one cohort is represented in the different age groups. The problem is that older cohorts are represented more often (because of the survey design) in the older age groups. This means that age differences are underestimated somewhat if cohort differences are leading to increases in the variable of interest, say occupational level. Second, we have some idea of the magnitude of cohort versus longitudinal differences from the previous chapter, so we can say whether or not a particular description of age changes reflects cohort differences as well. Third, the previous chapter showed that cohort differences in occupational goals and attainment were probably non-existent for whites except for type of work entered. Cohort differences are, however, sizeable for blacks. Age changes among the NLS blacks may be largely the result of cohort differences brought on by environmental changes. If environmental conditions have changed the prospects for growth among more recent cohorts (i.e. men under the age of 14 in 1966 and so not included in the NLS) the age differences to be shown below(which underestimate age changes for individual cohorts) may not accurately represent the developmental changes being experienced by these more recent black cohorts. Thus it is possible that current generations of blacks are more similar to whites in how they change with age than will be indicated in the following tables.

Later chapters will examine strictly longitudinal changes, so that any inferences about development drawn from the quasi cross-sectional data in this chapter can be tested. But at this point, all I am trying to do is give a general idea of what employment looks like according to the status-field scheme. The cohort and time differences do not alter that pattern to any great degree.

Results

Employment and Enrollment Status

Columns 3 and 5 of Table 7.1 show the percent of men who are enrolled in school at each age. At age 16 almost 93% of white men are enrolled. A big drop in enrollment occurs by age 18, when only 56% are still enrolled. The percentage drops to 16% by age 24 and 9% by age 28. A smaller proportion of blacks than whites is enrolled in school at all ages, though the gap is largest at age 20 when proportionally twice as many whites as blacks are still enrolled in school. The first two columns show the percentages of all men of that age group whose major activity is either school (column 1) or work (column 2). They show that up through age 22, the major activity of enrolled men is going to school. But by age 22, this amounts to only 16% of all men of that age group. Column 4 shows the percentage of men who are not enrolled and whose major activity is working. By age 20, this comprises almost half of all white men; by age 24 it includes at least 80% of all men. The pattern is similar for blacks, except that leaving school and having work as a major activity occurs at earlier ages for blacks than for whites. At all ages, working is the major activity of proportionally more blacks than of whites who are not enrolled in school. If we add together columns 2 and 4, however, it is clear that after age 24, working is the major activity of more whites--whether enrolled or not--than it is for blacks. This is because two-thirds of enrolled whites still say that working is their major activity.

Insert Table 7.1 About Here

Table 7.2 provides additional information about the employment status of whites and blacks. At all but ages 18 and 20, a greater proportion of whites than of blacks are employed. (No distinction is drawn here between part time and full time work.) At age 16, 50% of whites and 40% of blacks are employed. By age 22, the percentages are 85% and 84%; by age 28 they are 96% and 94%. The table also shows what percentage of the employed men report that working is their major activity. From age 18 on, working is the major activity of most of the employed men. Somewhat fewer whites are looking for work and somewhat more proportionately are not in the labor force (neither employed nor looking for work). At this point, it must be remembered that Chapter 6 showed that younger cohorts of blacks aged 19-22 reported less often than older cohorts that work was their major activity. Hence, we would expect that the figures reported in Table 7.2 are overestimated for today's 19-22 year old black men.

Insert Table 7.2 About Here

Table 7.3 shows the average amount of time men spent in different employment statuses during the previous year. White 16-year-olds spent 24 weeks of the year on the average employed; blacks spent 20 weeks on the average. This is consistent with the fact that a smaller proportion of blacks were probably employed at any given time as indicated by employment at the time of survey shown in Table 7.2.

Table 7.1

Percentage of Men in Different Major Activities: By Race and Age (Unweighted)

Age in Survey year	Enrolled and:			Not enrolled and:		(N)
	School is major activity (1)	Work is major activity (2)	Total % enrolled[a] (3)	Work is major activity (4)	Total % not enrolled[a] (5)	
			Whites			
16	89.5	2.0	92.8	3.9	7.2	(887)
18	47.9	5.8	55.7	36.0	44.3	(1489)
20	35.2	7.3	43.9	48.7	56.1	(1425)
22	15.5	9.2	25.3	67.5	74.7	(1179)
24	6.8	8.4	15.5	80.5	84.5	(1104)
26	4.3	8.1	12.5	83.9	87.5	(929)
28	1.0	8.1	9.1	87.4	90.9	(484)
			Blacks			
16	78.5	4.1	84.1	9.4	15.9	(395)
18	37.9	4.9	43.6	44.3	56.4	(675)
20	18.7	4.3	23.3	63.3	76.7	(540)
22	6.9	3.5	10.4	76.2	89.6	(403)
24	2.2	1.9	4.0	84.0	96.0	(321)
26	2.1	2.9	5.0	87.0	95.0	(239)
28	0.0	3.5	3.5	89.5	96.5	(115)

[a] Includes men who say that their major activity was something other than school or work (e.g., looking for work).

Table 7.2

Employment Status by Race and Age (Unweighted)

Age	% Employed		% Unemployed	% not in the Labor Force	(N)
	Total	Work is major activity			
		Whites			
16	49.5	5.9	8.9	41.6	(883)
18	62.3	41.8	7.8	29.9	(1480)
20	71.7	55.9	5.3	23.0	(1416)
22	84.6	76.6	4.5	10.9	(1168)
24	92.0	88.8	1.9	6.1	(1100)
26	95.2	91.9	1.4	3.4	(923)
28	95.8	95.4	2.1	2.1	(483)
		Blacks			
16	39.5	13.5	18.2	42.3	(395)
18	63.7	49.2	11.7	24.6	(674)
20	76.0	67.6	9.7	14.3	(537)
22	83.8	79.7	9.2	7.0	(402)
24	88.1	86.3	7.5	4.4	(320)
26	91.7	89.9	2.9	5.4	(239)
28	94.0	93.0	4.3	1.7	(115)

Average weeks in employment are more equal by age 20. Blacks spend more time during the year looking for work, for some age groups over twice as much time as do whites. One to 2 weeks is average among white men; 3 to 4 is more likely for black men.

Insert Table 7.3 About Here

Field and Level of Employment

This section first examines the status level of work that men hold, then the field of work they are in. Finally, it examines employment according to the status-field scheme. No distinction is drawn in the following tables between part time and full time employment.

Status Level. Table 7.4 shows the percent of all men (the upper panel) and then the percent of employed men only (the lower panel) who are employed at three broad levels of status. The composition of these levels was discussed in Chapter 4.

Insert Table 7.4 About Here

Among whites, 41% of all 16-year-olds are employed in low-level work. By age 28, the proportion has dropped to 32%. Among older white men, approximately equal proportions are employed in each of the three status levels. Looking only at employed white men, it is clear that most teenage men who are employed are employed in low-level jobs. By later ages, many men have shifted out of this low-level work. This is not clearly the case with blacks. Like whites, most young black men are employed in low-level work. But unlike white men, most older black men are too. Instead of the total percent of men in low-level work dropping with age, it doubles among black men. Proportionately four times as many whites as blacks are employed in high-level work at most ages.

Table 7.3

Mean Weeks[a] Spent in Different Employment Statuses in the Previous Year: By Race and Age (Unweighted)

Age	Employed $\bar{X}$	Employed (N)	Unemployed $\bar{X}$	Unemployed (N)	Not in the Labor Force $\bar{X}$	Not in the Labor Force (N)
			Whites			
16	23.7	(881)	2.4	(876)	25.8	(881)
18	33.1	(1466)	2.1	(1459)	16.5	(1461)
20	35.8	(1374)	2.3	(1371)	13.1	(1346)
22	41.3	(1116)	2.1	(1118)	7.6	(1076)
24	45.7	(1083)	1.1	(1086)	4.4	(1067)
26	47.6	(911)	1.1	(909)	2.8	(903)
28	48.3	(472)	1.4	(473)	1.9	(471)
			Blacks			
16	19.9	(390)	2.7	(391)	29.3	(394)
18	29.0	(659)	3.9	(660)	19.1	(660)
20	36.1	(520)	4.4	(519)	10.9	(509)
22	41.3	(377)	3.4	(374)	5.9	(360)
24	43.7	(312)	3.7	(313)	4.0	(308)
26	46.2	(230)	1.5	(228)	3.9	(228)
28	47.1	(108)	2.8	(108)	1.5	(108)

[a] For some men the previous year refers to somewhat more or fewer than 52 weeks because it refers to the number of weeks between the current and last interview.

Table 7.4

Percentage of All Men and of Employed Men Only who are Employed in Different Levels of Work: By Race and Age (Percentage)

Age	Lo	Mod	Hi	Not Employed	(N)
			All Men		
Whites					
16	41.0	7.9	0.5	50.4	(883)
18	42.0	16.3	4.1	37.7	(1480)
20	38.0	22.6	10.4	28.3	(1416)
22	37.4	26.9	20.4	15.4	(1168)
24	35.1	26.7	30.1	8.0	(1100)
26	33.0	28.5	33.6	4.8	(923)
28	31.5	27.4	36.8	4.2	(483)
Blacks					
16	35.0	4.8	0.3	60.5	(395)
18	50.8	12.6	1.2	36.3	(674)
20	57.6	17.5	2.8	24.0	(537)
22	62.1	14.0	7.2	16.2	(402)
24	62.5	16.9	8.7	11.9	(320)
26	66.5	16.7	8.3	8.3	(239)
28	64.4	19.1	8.7	6.0	(115)
			Employed Men Only		
Whites					
16	82.8	16.0	1.1		(437)
18	67.3	26.1	6.6		(923)
20	53.9	31.5	14.6		(1016)
22	44.2	31.7	24.1		(988)
24	38.1	29.1	32.8		(1012)
26	34.7	29.9	35.4		(879)
28	32.8	28.7	38.4		(463)
Blacks					
16	87.2	12.2	0.6		(156)
18	78.3	19.8	1.9		(429)
20	75.7	19.4	4.9		(408)
22	74.5	16.9	8.6		(337)
24	70.9	19.1	9.9		(282)
26	72.6	18.3	9.1		(219)
28	70.4	20.4	9.3		(108)

Field of Work. Table 7.5 shows the percentage of all men and of employed men only who are employed in the different Holland fields of work. Among whites, between 40 to 50% of all white men are employed in realistic work no matter what the age group, though the percentage stabilizes around 48% throughout the twenties. With increasing age, white men appear to primarily enter enterprising work, with smaller numbers going into investigative and social jobs. The percentage in artistic work never increases. Once again the picture is different for black men. They are employed primarily in realistic work, no matter what age they are. The next largest field of work is social, though no more than 7% of black men are employed in this field at any one time.

Insert Table 7.5 About Here

The results in the previous chapter suggest that developmental changes may be underestimated in this table. There may actually be a somewhat larger flow of men into enterprising work and out of realistic work with age. But the major pattern of age and race differences would not be altered.

Field and Status. Previous tables showed what levels and then what fields of work men are in at each age. Tables 7.6 and 7.7 take a look at employment using both dimensions of work at the same time. Whites are shown in Table 7.6; blacks in 7.7. The major point of these tables is that most men are employed in fewer than half of the possible 18 categories. This finding was to be expected on the basis of patterns of employment among adults discussed in Chapter 4. Those results clearly showed that field and status level are related, so that some fields of work do not exist at certain status levels.

Table 7.5

Percentage of all Men and of Employed Men Only Who are Employed in Different Fields of Work: By Race and Age (Percentage)

	Field of Work if Employed							
Age	R	I	A	S	E	C	Not Employed	(N)
				All Men				
Whites								
16	40.8	0.1	1.1	0.8	5.3	1.3	50.4	(883)
18	47.7	1.0	1.5	1.7	6.6	3.9	37.7	(1480)
20	47.8	2.9	1.0	2.5	10.7	5.9	28.3	(1416)
22	49.6	4.9	2.1	7.6	13.7	6.8	15.4	(1168)
24	47.4	7.9	1.3	8.0	20.5	6.8	8.0	(1100)
26	49.6	8.2	1.4	8.6	20.8	6.5	4.8	(923)
28	46.2	8.6	1.8	9.5	24.6	4.9	4.2	(483)
Blacks								
16	34.7	0.3	0.5	0.5	2.8	1.3	60.5	(395)
18	54.1	0.6	0.6	1.9	2.7	3.7	36.3	(674)
20	61.3	0.9	0.7	3.7	3.7	5.6	24.0	(537)
22	67.1	1.7	1.0	6.1	3.7	3.9	16.2	(402)
24	72.2	1.2	0.6	6.6	3.8	3.7	11.9	(320)
26	74.1	2.5	0.8	6.7	2.5	4.9	8.3	(239)
28	74.8	3.5	0.9	5.2	5.2	4.3	6.0	(115)
				Employed Men Only				
Whites								
16	82.4	0.2	2.3	1.6	10.8	2.7		(437)
18	76.5	1.6	2.4	2.7	10.5	6.3		(923)
20	66.7	4.0	2.7	3.4	14.9	8.3		(1016)
22	58.6	5.8	2.4	9.0	16.2	8.0		(988)
24	51.6	8.6	1.5	8.8	22.2	7.3		(1012)
26	52.1	8.6	1.5	9.1	21.8	6.8		(879)
28	48.2	9.1	1.9	9.9	25.7	5.2		(463)
Blacks								
16	87.8	0.0	0.6	1.3	7.1	3.2		(156)
18	85.1	0.9	0.9	3.0	4.2	5.8		(429)
20	80.6	1.2	1.0	4.9	4.9	7.4		(408)
22	80.1	2.1	1.2	7.4	4.5	4.7		(337)
24	81.9	1.4	0.7	7.4	4.3	4.3		(282)
26	80.8	2.7	0.9	7.3	2.7	5.5		(219)
28	79.6	3.7	0.9	5.6	5.6	4.6		(108)

Insert Tables 7.6 and 7.7 About Here

For greater ease of examining the status-field employment patterns, Table 7.8 was constructed from Tables 7.6 and 7.7. It shows the percentage of men in each age group who are employed in each of the major groups. The upper panel of Table 7.8 shows the results for whites and reveals that almost all men are employed in only 7 of the possible 18 categories. Realistic work is the only low-level group of any size; the moderate level groups are drawn from realistic, enterprising and conventional work; the high-level jobs are drawn from the enterprising, investigative, and social fields. At most only 10% of white men are employed in the 11 "other" categories. Turning to the lower panel for blacks, we see that blacks of all ages are found almost exclusively in only one of the occupational groups--low-level realistic work. They are found proportionately less often than whites in all other groups of work.

Insert Table 7.8 About Here

Before going on, I will say a little about the composition of these seven major occupational groups. The three moderate-level groups are on the average equal in status, as are men in the three high-level groups; the mean status of 28-year-old men in each of the seven groups is, respectively, 17, 41, 41, 45, 72, 74, and 71. Sample occupations in each of the seven groups are as follows: R Lo--bootblacks, assemblers, meat cutters, and brickmasons; R Mod--machinists, firemen, mail carriers, and electrotypers; C Mod--clerks, telephone operators, and bookkeepers; E Mod--deliverymen, sales clerks, farm managers, and store floor managers; E Hi--insurance adjusters, purchasing agents, public administrators, and lawyers; S Hi--librarians, teachers, social workers, and psychologists; I Hi--engineering

Table 7.6

Percentage of White Men Employed in Different Fields and Levels of Work: By Age (Unweighted)

Field and Level of Work

	R			I			A			S		
Age	Lo	Mod	Hi	Lo	Mod	Hi	Lo	Mod	Hi	Lo	Mod	Hi
16	39.0	1.7	0.1	-	0.1	-	-	1.0	0.1	0.8	-	-
18	40.9	6.1	0.7	-	0.1	0.9	-	1.3	0.2	0.5	0.7	0.5
20	37.7	9.3	0.8	-	0.3	2.6	-	0.9	1.0	0.7	0.8	1.0
22	36.1	12.1	1.4	-	0.2	4.7	-	1.2	0.9	0.9	1.4	5.3
24	34.3	11.5	1.6	-	0.3	7.6	-	0.7	0.6	0.5	1.8	5.7
26	32.8	14.0	2.8	-	0.3	7.9	-	0.4	1.0	0.1	2.8	5.7
28	31.1	12.8	2.3	-	0.2	8.5	-	0.4	1.4	0.2	3.1	6.2

	E			C			Not Employed	(N)
Age	Lo	Mod	Hi	Lo	Mod	Hi		
16	1.1	3.9	0.3	0.1	1.2	-	50.4	(883)
18	0.3	4.8	1.5	0.3	3.3	0.3	37.7	(1480)
20	0.1	6.4	4.2	0.2	4.9	0.8	28.2	(1416)
22	0.3	6.4	7.0	0.1	5.6	1.1	15.4	(1168)
24	0.1	8.0	12.4	0.2	4.4	2.2	8.0	(1100)
26	-	7.4	13.4	0.1	3.6	2.8	4.8	(923)
28	0.2	7.2	17.2	-	3.7	1.2	4.2	(483)

Table 7.7

Percentage of Black Men Employed in Different Fields and Levels of Work: By Age (Unweighted)

Field and Level of Work

	R			I			A			S		
Age	Lo	Mod	Hi	Lo	Mod	Hi	Lo	Mod	Hi	Lo	Mod	Hi
16	33.2	1.5	-	-	0.3	-	0.5	-	-	0.5	-	-
18	48.5	5.3	0.3	-	0.3	0.3	-	0.6	-	1.2	0.4	0.3
20	55.5	5.4	0.4	-	0.9	-	-	0.7	-	1.7	0.9	1.1
22	60.9	5.7	0.5	-	0.7	1.0	-	1.0	-	1.2	0.7	4.2
24	61.9	9.7	0.6	-	0.6	0.6	-	-	0.6	0.3	1.3	5.0
26	65.3	8.4	0.4	-	-	2.5	-	0.4	0.4	0.4	2.1	4.2
28	63.5	11.3	-	-	-	3.5	-	0.9	-	1.7	-	3.5

	E			C			Not	
Age	Lo	Mod	Hi	Lo	Mod	Hi	Employed	(N)
16	0.5	2.0	0.3	0.3	1.0	-	60.5	(395)
18	-	2.4	0.3	0.1	3.6	-	36.3	(674)
20	-	2.6	1.1	0.4	5.0	0.2	24.0	(537)
22	-	2.7	1.0	0.2	3.2	0.5	16.2	(402)
24	-	1.9	1.9	0.3	3.4	-	11.9	(320)
26	-	2.5	-	0.8	3.3	0.8	8.3	(239)
28	0.9	2.6	1.7	-	4.3	-	6.0	(115)

Table 7.8

Field and Level of Work: By Race and Age
(Unweighted)

Age	Occupational Group								Not Employed	(N)
	R Lo	R Mod	C Mod	E Mod	E Hi	I Hi	S Hi	Other		
					Whites					
16	39.0	1.7	1.2	3.9	0.3	0.0	0.0	3.2	50.4	(883)
18	40.9	6.1	3.3	4.8	1.5	0.9	0.5	4.4	37.7	(1480)
20	37.7	9.3	4.9	6.4	4.2	2.6	1.0	5.6	28.2	(1416)
22	36.1	12.1	5.6	6.4	7.0	4.7	5.3	7.5	15.4	(1168)
24	34.3	11.5	4.4	8.0	12.4	7.6	5.7	8.0	8.0	(1100)
26	32.8	14.0	3.6	7.4	13.4	7.9	5.7	10.3	4.8	(923)
28	31.1	12.8	3.7	7.2	17.2	8.5	6.2	9.0	4.2	(483)
					Blacks					
16	33.2	1.5	1.0	2.0	0.3	0.0	0.0	2.1	60.5	(395)
18	48.5	5.3	3.6	2.4	0.3	0.3	0.3	2.9	36.3	(674)
20	55.5	5.4	5.0	2.6	1.1	0.0	1.1	5.2	24.0	(537)
22	60.9	5.7	3.2	2.7	1.0	1.0	4.2	4.8	16.2	(402)
24	61.9	9.7	3.4	1.9	1.9	0.6	5.0	3.7	11.9	(320)
26	65.3	8.4	3.3	2.5	0.0	2.5	4.2	5.3	8.3	(239)
28	63.5	11.3	4.3	2.6	1.7	3.5	3.5	3.5	6.0	(115)

technicians, chemists, civil engineers and physicians.

Returning to Table 7.8, the youngest white men are employed primarily in low-level realistic work. As the men aged and as more entered the labor market, employment in this type of work decreased and the men moved into an increasingly broad spectrum of work. R-moderate and S-high increase in representation until age 22, at which time they level off. C-moderate peaks at almost 6% of white men in the early 20's and then decreases somewhat. I-high seems to be entered primarily between the ages 22 and 24, an age during which many men could be presumed to be graduating from college. The second largest of the occupational groups among whites--E-high--continues to grow in size through age 28, at which age 17% of the white men are employed in that group. By age 28, three-quarters of white men are employed in only four of the groups--the two realistic and the two enterprising groups.

Turning to black men again, we see that three-quarters of them are employed by age 28 in only two categories--R-low and R-moderate. In contrast to whites, the proportion of black men in R-low increases with age. Between ages 22 and 26 a small percentage of black men enter two of the high-level groups--I-high and S-high.

Field and Status for Different Educational Levels. The major correlate of occupational status is one's educational attainment. The age and race differences shown in the previous tables are to some extent the result of younger men and blacks having less education. In order to provide a better idea of how employment patterns differ by educational status, men of different educational levels are shown separately in the following tables. Three educational groups are used: 11 or fewer years of education (Table 7.9), exactly 12 years of education (Table 7.10), and 13 or more years (Table 7.11).

Many employed men are still enrolled in school, and we might guess that many of these enrolled men are only holding their jobs temporarily until they finish school. In order to get a better idea of what "career" jobs might be at different educational levels, the analysis has been restricted to only those men who are not currently enrolled in school. Some age groups have been omitted because most of the men in them were still enrolled in school.

White men with 11 or fewer years of education and not enrolled in school (Table 7.9) work primarily in realistic work; by age 28 about 57% are in R-low and 17% in R-moderate. Another 10% are found in E-moderate, with only a few in E-high and I-high. Up to 3% of blacks are found in E-moderate, but otherwise they are found only in realistic work.

Insert Table 7.9 About Here

With 12 years of education (Table 7.10) white men are found in more diverse types of jobs. About 20% are found in R-moderate and 9% or so are found in both E-moderate and E-high. Although blacks are still found primarily in realistic work, they are found more often than the less educated blacks in the moderate levels of white collar work--C-moderate and E-moderate. In contrast to whites, none of the blacks are found in high-level work.

Insert Table 7.10 About Here

Table 7.11 shows the dramatic difference one or more years of college makes. By age 28, very few white men are found in realistic work, the type of work employing the majority of less educated men. Instead, most of the men are in high-level work. The largest category is E-high, which employs over one quarter of the men from age 24 on. Blacks are similar to whites in that relatively few are employed in realistic work and most are employed in high-level work. The major difference is that very few blacks are found

Table 7.9

Field and Level of Work Held by Men with 11 or Fewer Years of Education and Not Enrolled in School; By Race and Age (Unweighted)

Age	Occupational Group								Un-Employed	Not in Labor Force	(N)
	R Lo	R Mod	C Mod	E Mod	E Hi	I Hi	S Hi	Other			
Whites											
18	64.0	5.4	1.1	3.2	2.2	0.5	0.0	1.0	11.8	10.8	(186)
20	60.6	9.7	1.4	5.6	4.2	0.5	0.0	3.2	8.3	6.5	(216)
22	59.8	14.5	1.9	7.0	2.8	1.4	0.0	3.8	3.7	6.1	(214)
24	66.7	12.0	2.6	7.3	4.3	0.4	0.4	1.6	2.6	2.1	(234)
26	59.6	17.8	2.3	7.5	3.8	0.5	0.0	2.4	1.4	4.7	(213)
28	56.7	17.3	3.8	9.6	1.9	1.9	0.0	3.0	2.9	2.9	(104)
Blacks											
18	70.2	3.4	1.0	1.9	0.0	0.0	0.0	0.4	7.7	15.4	(208)
20	72.6	4.8	0.9	3.0	0.9	0.0	0.9	0.0	9.1	7.8	(230)
22	79.4	2.9	0.6	2.3	0.0	0.0	0.0	0.6	9.1	5.1	(175)
24	75.9	4.8	1.2	1.2	1.2	0.0	0.0	1.3	12.0	3.6	(166)
26	79.4	8.4	0.8	3.1	0.0	0.0	0.0	0.7	2.3	5.3	(131)
28	83.3	10.0	0.0	3.3	0.0	0.0	0.0	0.0	1.7	1.7	(60)

Table 7.10

Field and Level of Work Held by Men with Exactly 12 Years of Education and Not Enrolled in School: By Race and Age (Unweighted)

	Occupational Group										
Age	R Lo	R Mod	C Mod	E Mod	E Hi	I Hi	S Hi	Other	Un-Employed	Not in Labor Force	(N)
					Whites						
18	58.9	13.3	3.1	3.8	2.5	0.7	0.4	3.8	6.5	7.0	(445)
20	50.6	19.2	3.5	5.9	4.7	1.6	0.2	3.8	6.1	4.4	(427)
22	49.3	18.7	5.2	6.1	5.8	1.1	0.0	4.7	5.5	3.6	(363)
24	42.7	19.6	4.2	10.3	8.7	3.4	0.3	7.1	1.7	2.0	(358)
26	43.3	20.2	4.0	8.1	8.7	4.0	0.3	8.9	0.6	1.9	(321)
28	42.2	18.5	4.0	9.2	12.1	2.9	0.0	7.1	1.7	2.3	(173)
					Blacks						
18	60.8	10.8	6.0	3.6	0.6	0.0	0.0	5.0	9.0	4.2	(166)
20	63.7	6.4	3.2	3.2	1.3	0.6	0.6	3.8	10.2	7.0	(157)
22	61.5	9.6	4.4	3.7	1.5	0.0	0.7	6.8	8.1	3.7	(135)
24	62.0	19.6	2.2	4.3	2.2	0.0	0.0	5.3	2.2	2.2	(92)
26	66.7	8.7	2.9	2.9	0.0	0.0	0.0	8.7	4.3	5.8	(69)
28	60.0	14.3	5.7	2.9	0.0	0.0	0.0	5.6	8.6	2.9	(35)

in enterprising work at any level and a large percentage are employed in S-high. Approximately one-third of blacks with 13 or more years of education are found in this type of work in contrast to only 14-15% of whites.

Insert Table 7.11 About Here.

The implications of these differences can be reviewed in a few summary remarks. Without 12 years of education(that is, presumably without a high school diploma), a small percentage of whites are employed in white collar jobs-- particularly C-mod and E-mod. As Table 2.4 in Chapter 2 showed, poorly educated men in enterprising work can earn relatively good money. With 12 years of education, up to a fifth of white men are found in enterprising work. However, black men with 12 years of education or fewer are employed almost exclusively in realistic work; white-collar work does not seem to be an option for them without some college education. With some college education, both blacks and whites go primarily into high-level work, but whites most often into enterprising jobs and blacks into social jobs. Again, as noted in Chapter 2, social jobs pay poorly in comparison to enterprising jobs. Thus, even with a college education, blacks still do not enter fields of work that pay well.

Recruitment and Mobility

The tables in earlier sections suggested that jobs are age-graded, that young men hold some types of jobs in great number (e.g. R-low), but that other types of work (such as I-high) draw primarily from older age groups. The tables in this section provide some idea about which types of work are entry-level occupations and which might be stepping-stone occupations for men. The previous tables provided a portrait of where men are at any particular age, but they do not show the movement that occurs from year to year. Men

Table 7.11

Field and Level of Work Held by Men with 13 or More Years of Education and Not Enrolled in School; By Race and Age (Unweighted)

	Occupational Group										
Age	R Lo	R Mod	C Mod	E Mod	E Hi	I Hi	S Hi	Other	Un-Employed	Not in Labor Force	(N)
					Whites						
18	68.0	8.0	4.0	4.0	0.0	0.0	0.0	8.0	0.0	8.0	(25)
20	36.7	7.3	6.7	6.0	10.7	5.3	2.7	10.6	6.0	8.0	(150)
22	21.4	8.5	7.8	8.2	14.3	6.8	13.9	10.3	5.1	3.7	(294)
24	14.0	6.0	4.8	7.2	26.9	12.2	12.5	12.5	2.4	1.5	(335)
26	11.0	6.6	3.3	6.2	27.1	12.8	14.3	16.8	1.5	0.4	(273)
28	8.6	7.4	3.7	4.9	29.0	14.8	15.4	13.7	2.5	0.0	(162)
					Blacks						
18	a	a	a	a	a	a	a	a	a	a	(6)
20	32.0	8.0	12.0	0.0	0.0	0.0	0.0	12.0	28.0	8.0	(25)
22	30.6	4.1	6.1	2.0	4.1	2.0	26.5	8.3	10.2	6.1	(49)
24	25.0	8.3	10.4	0.0	4.2	2.1	31.3	12.4	4.2	2.1	(48)
26	18.5	7.4	7.4	0.0	0.0	14.8	33.3	11.2	3.7	3.7	(27)
28	a	a	a	a	a	a	a	a	a	a	(16)

[a] Too few cases to calculate percentages.

do not necessarily stay employed once they take a job. The previous tables show which groups of work have net increases or decreases from one age to the next in the number of young men working in them, but they provide no idea of how much gross in and out movement produced those net changes. The tables in this section take a look at these recruitment and mobility issues. These analyses are limited to whites because there are not enough blacks for most of them.

Table 7.12 provides some indication of the amount of movement into and out of the labor force men experience from year to year as well as the amount of changing they do between the major field-status occupational groups. The last three columns show the percent of each age group that entered employment, left employment, and remained not employed (either unemployed or not in the labor force). The comparison is between the men's employment status at the time of the current survey and their employment status at the time of the survey one year earlier. Among men 16 years old, 40% remained not employed, 20% entered employment, and 10% left it. With increasing age, a smaller and smaller proportion of men remain not employed, and more men enter than leave employment. After age 22, however the proportion of men moving in and out of employment is small--from 5 to 7%. By this age, most men presumably have their schooling.

The first four columns of Table 7.12 show the amount of change among major occupational groups experienced by men who were employed both years. At each age, more men remain in the same major field and status level of work than change field or status. When men change major occupational groups, they tend to change both field and level and thus to make both horizontal and vertical moves. Strictly vertical changes are slightly more common than are changes which are only horizontal. The first column (which shows the percentage of men staying in the same type and level of work) indicates that with increasing age, men experience considerably more stability in employment status. Nevertheless, over one third of the oldest group made some sort of major change within the one-year period.

Insert Table 7.12 About Here

Table 7.13 gives an indication of the gross amount of movement into and out of different occupational groups at different ages. The upper panel shows the percentage of men currently employed in each occupational group who were not employed in that group the previous year; that is, it shows the percent of each group that is new recruits in a one-year period. The lower panel shows the percentage of men who were in those groups the previous year but who left those groups before the current year;that is,it shows the percent of men leaving each group in a one-year period. The growth and decline of particular groups can be understood better by examining the number of men entering an occupation versus the number leaving the occupation during a year.

Insert Table 7.13 About Here

R-low has a greater proportion of new recruits than leavers among the younger men; among older men the trend is reversed, accounting for the relative decline in the proportion of men in R-low. In addition,these entrance and exit rates are low compared to those in other groups of work. For example, there is generally a 50 to 70% turnover among 18- and 20-year old men in all groups other than R-low, the rate being only 30 to 50% in R-low. If men in R-low jobs are changing jobs, they are changing primarily within the R-low category.

Table 7.12

Employment Status in Two Consecutive Years By Age in the Second Year: Whites (Unweighted)

Age	Remained in Same Field and Level[a] of work	Changed occupational group			Entered Employment	Left Employment	Remained Not Employed[b]	(N)
		Field Only	Level[a] Only	Both Field and Level[a]				
16	20.5	2.2	1.4	3.6	21.8	10.2	40.4	(882)
18	29.4	2.0	4.6	7.8	18.4	12.2	25.6	(1454)
20	38.4	3.6	5.7	11.2	13.2	8.4	19.3	(1314)
22	50.4	5.2	5.8	12.6	11.2	6.1	8.6	(1053)
24	63.3	4.8	8.0	11.5	5.7	2.5	4.2	(1040)
26	66.1	5.7	9.1	10.4	4.3	2.2	2.2	(881)
28	67.9	7.2	8.4	9.9	2.5	2.5	1.5	(473)

[a] Changing level of work refers to switching between the low, moderate, or high status groups.

[b] Not employed includes unemployed and not in the labor force.

Table 7.13

Percentage of White Men Currently in Each Occupational Group Who Were Not in That Group the Previous Year (New Recruits) and the Percentage Who were in the Group the Previous Year but Not in the Current Year (Leavers)

% of Group Who Are New Recruits in the Current Year

Age	R Lo		R Mod		C Mod		E Mod		E Hi		I Hi		S Hi	
	%	(N)	%	(N)	%	(N)	%	(N)	%	(N)	%	(N)	%	(N)
16	54.2	(343)	a		a		82.4	(34)	a		a		a	
18	41.6	(591)	74.7	(87)	71.4	(49)	67.1	(70)	a		a		a	
20	30.3	(495)	51.7	(120)	64.2	(67)	65.6	(90)	64.2	(53)	73.5	(34)	a	
22	22.2	(374)	40.0	(125)	52.6	(57)	52.9	(68)	65.8	(76)	59.3	(54)	58.1	(62)
24	18.9	(360)	43.1	(123)	45.7	(46)	48.3	(87)	42.2	(128)	38.0	(79)	21.0	(62)
26	21.0	(290)	37.9	(124)	43.7	(32)	47.1	(68)	37.2	(121)	38.0	(71)	14.3	(49)
28	17.6	(148)	34.4	(61)	a		50.0	(34)	36.6	(82)	23.7	(38)	13.8	(29)

% of Men in Each Group the Previous Year Who Left

Age	R Lo		R Mod		C Mod		E Mod		E Hi		I Hi		S Hi	
	%	(N)	%	(N)	%	(N)	%	(N)	%	(N)	%	(N)	%	(N)
16	35.7	(244)	a		a		71.4	(21)	a		a		a	
18	39.9	(574)	60.7	(56)	71.[illegible]	(49)	70.5	(78)	a		a		a	
20	32.7	(513)	48.7	(113)	61.9	(63)	56.9	(72)	48.6	(37)	55.0	(20)	a	
22	29.2	(411)	34.8	(115)	54.2	(59)	51.5	(66)	38.1	(42)	56.9	(51)	31.6	(38)
24	23.0	(379)	40.7	(118)	50.0	(50)	39.2	(74)	24.5	(98)	27.9	(68)	19.7	(61)
26	23.2	(298)	32.5	(114)	59.1	(44)	41.9	(62)	26.9	(104)	31.2	(64)	25.0	(56)
28	23.3	(159)	33.3	(60)	a		54.1	(37)	28.8	(73)	21.6	(37)	7.4	(27)

---

[a] Fewer than 20 cases.

In R-moderate jobs, the turnover is high among the young men but drops to about one-third of the men by age 28. The turnover is somewhat higher in C-moderate work, and it favors attrition from that group as men enter their late twenties. The proportion of men entering and leaving E-moderate work remains high--up to 50%--through the late twenties, but it favors slight growth at most ages. Entrance rates are fairly high during the ages 20 and 22 for the three groups of high-level jobs. Exit rates are fairly low in the late twenties in these groups, though not quite as low as for R-low work.

The major pattern is that entry rates are high at young ages and then drop off with age. They are probably quite high during those ages when the occupational group serves as an entry-level job. During the teens (and thus necessarily with less educated men), R-low in particular, as well as the three moderate-level groups, serve as entry-level jobs. Exit rates are higher in the three moderate-level groups than in other groups at older ages. Although ceiling and floor effects might partially account for this pattern, it is also possible that these moderate-level jobs serve as stepping stones to higher-level jobs. Men in E-moderate, for example, may move into E-high jobs.

The next two tables provide more specific evidence about which occupational groups serve most often as entry-level jobs. Table 7.14 shows the percentage of new recruits (the percentage of men in the upper panel of Table 7.13) who were not employed the previous year. We cannot assume that these men were all entering the labor market for the first time, but at least we can consider their jobs reentry jobs. Relative to other new recruits to the occupational group, they probably had less experience. Neither can we say that because most men entering a particular group have worked before, the job they enter is not an entry-level job. For example, many graduate students work during their training, but their first job after schooling is likely to be an entry job for their line of work. I am going to assume that the higher the percentage of new recruits who were not employed the previous year, the more likely it is that the occupational group serves as an entry-level job for that age group. But with the foregoing limitations in mind, those percentages will be considered as underestimates.

Insert Table 7.14 About Here

R-low is clearly an entry-level job through age 22. Although E-moderate also serves as an entry-level group for teenagers, it--like the other two groups of moderate-level work and E-high--appears to draw workers primarily from other groups of work. I-high continues to draw one-third of its recruits from new workers through age 26. S-high appears to be a late-entry entry-level job because, as noted before, it draws new workers primarily from men 22 to 26 and this table shows most of those new workers are new entrants to the labor force But Tables 7.13 and 7.14 also suggest that once men enter this field in the mid-twenties, there is less movement into or out of social jobs than is the case with other groups of work.

One last table examines the issue of entry-level jobs. Table 7.15 looks at where men who have not been employed in the previous year enter the labor market when they go back in. Percentages are calculated separately for the different age groups. Only the ages 16 to 22 have any appreciable number of men entering employment, so the table is limited to those age groups. Among 16 year olds, over 80% enter R-low; the largest other group is E-moderate. Among older groups, new entrants go into a broader range of jobs. By age 20, over half of new entrants enter something other than R-low. At age 18, presumably after high school graduation, R-moderate and C-moderate begin to

Table 7.14

Percentage of New Recruits in Different Occupational Groups Who were Not Employed the Previous Year: Whites By Age (Unweighted)

Age	% of New Recruits Who Were Not Employed the Previous Year						
	R Lo	R Mod	C Mod	E Mod	E Hi	I Hi	S Hi
16	85.4	a	a	46.4	a	a	a
18	71.6	30.6	42.8	40.4	a	a	a
20	56.4	24.2	30.2	35.5	35.4	32.0	a
22	45.5	16.0	16.7	22.3	16.0	37.4	55.6
24	24.9	7.4	0.0	11.8	12.8	36.6	61.4
26	23.3	4.2	7.1	9.3	8.9	33.4	28.7
28	23.3	0.0	a	11.8	6.6	11.0	0.0

[a] Fewer than 20 cases.

draw more significant proportions of men entering employment. At age 20 E-moderate increases its share and E-high begins to draw in new workers. At age 22, I-high and S-high begin taking in sizable proportions of new workers.

Insert Table 7.15 About Here

Summary

The results in this chapter and from previous ones support the following speculations. Low-level realistic work is the route by which most men enter the labor force. It includes "kid work" as well as many of the easy-entry and less desirable jobs in society. With age, many men move out of these jobs. After the large exodus of young men from these jobs, there is relatively little movement by older men either into or out of them.

Moderate-level jobs are also available to young men, some (E-moderate such as sales) jobs being available to men before graduating from high school. R-moderate and C-moderate jobs may more often require a high school diploma because men do not move into these jobs until age 18 or later. These would include many of the skilled trades as well as clerical and other moderate level white collar jobs. Although some young men enter directly into high-level enterprising work, the pattern seems to be one where men move from other types of work into E-high. Previous analyses have shown that less education is probably required for entering E-high than other types of high-level work, so it is not surprising that E-high draws workers at younger ages than do I-high and S-high. The latter seems to be an especially late entry job. Both I-high and S-high tend to recruit workers with a college education.

Table 7.15

Percentage of Men Not Employed in the Previous Year: Who Enter Different Occupational Groups: Whites by Age (Percentage)

Age in Survey Year	R Lo	R Mod	C Mod	E Mod	E Hi	I Hi	S Hi	Other	(N)
16	82.8	3.6	1.6	6.8	0.5	0.0	0.0	4.7	(192)
18	65.9	7.5	5.6	7.1	1.9	1.5	1.1	9.4	(267)
20	48.9	8.6	7.5	12.1	6.9	4.6	2.9	8.4	(174)
22	32.2	6.8	4.2	6.8	6.8	10.2	16.9	16.0	(118)

Chapter 8

ASPIRATIONS: WHAT DO MEN WANT AND DO THEY GET IT?

A fundamental assumption of the congruence models, as well as of vocational counseling in general, is that a good match between person and job leads to greater satisfaction and performance. Yet researchers in the congruence tradition have provided no systematic assessment of how many people actually do find a good match and at what ages they do so. The status attainment models do not use the concept of person-job match, instead assuming that people are better off the higher status job they get. Thus, they focus on explaining who is able to get these better jobs.

This chapter examines what men want--both status level and field of work. Then it examines the extent to which men get the level and field of work they want. With increasing age, men change both their aspirations and the jobs they do, so a look at this adjustment process is integral to any assessment of whether or not they get what they want. In short, we also have to ask,"Does what men want to do change according to what they see is realistic?"

The previous chapter provided a picture of one aspect of career development as schematized in Figure 3.1--the types and levels of jobs men hold at different ages. This chapter examines two additional aspects of career development in that figure--the jobs men want and the degree of congruence between job and aspiration at different ages. Chapter 9 will complete the picture of career development patterns by looking at the relation of jobs and aspirations from one year to the next. Some of those relations are touched on in the current chapter because the stability of aspirations from one year to the next are examined below.

Chapter 9, however, examines those relations in more detail and focuses on the question of whether previous aspirations or previous jobs are the stronger determinants of future career development.

Recent research has examined the occupational constraints within which people attempt to fulfill their aspirations. Based on an examination of the occupational aspirations of youth and the distribution of occupations in the economy when both were classified according to the same typology, G. Gottfredson et al. (1975) suggested that the distribution of jobs in society limits the possible amount of congruence or match between people and jobs. Although they found the distribution of aspirations of teenagers similar to the distribution of jobs in the economy, teenagers aspired to some types of work in greater proportion than such work actually existed. For example, boys aspired to investigative and artistic jobs in greater proportion than adult men were employed in such work, and they aspired to enterprising work in smaller proportion than such work was held by men. Dissimilarity between distributions of aspirations and jobs has often been taken as evidence of the lack of realism of vocational choices among youngsters (e.g., Trow, 1941). This dissimilarity implies that young people must either change their aspirations or else work at undesired jobs.

The following analyses extend earlier work by examining trends in aspiration-job congruence for different age groups to learn how accommodation may take place. Whites and blacks are analyzed separately because one of the major questions is whether or not blacks are less able to get the jobs they prefer. One purpose is also to more closely examine what kinds of jobs they prefer compared to whites. Analyses of comparable whites and blacks are carried out in later chapters to see if racial differences remain after controlling for important determinants of aspirations such as SES and ability. This chapter does provide, however, an overall assessment of the extent to which the gap between jobs and aspirations exists for both races.

Method

Age groups 16 to 28 are examined here. The method of constructing those groups is described in Chapter 7. As noted there, this method of constructing the sample does not overcome the confounding of age, cohort, and time effects (which are present in all social surveys). And as previous analyses showed, cohort effects are sizeable for some of the career outcomes being studied here. Although this method is effected less by cohort differences than are strictly cross-sectional comparisons, I should point out that the older age groups here are primarily from the older cohorts in the NLS. Hence, I will refer to this design as quasi-cross-sectional. Nevertheless, it is likely that the process of change and convergence revealed in this chapter is common to all cohorts within the time span studied. Longitudinal differences for the same men over time are examined to better verify the developmental processes suggested by the quasi-cross sectional comparisons among the different age groups.

Data on aspirations and employment in 2 consecutive years were examined for the different age groups. Occupational aspirations were obtained by asking the men each year what job they would like to have at age 30. Both aspirations and actual jobs held in the current year and in the previous year were coded according to field and according to the three broad status levels of work.

The analyses involve three different groups of men. The broadest group of men examined is labeled all men and includes all men for whom both current employment status and current occupational aspirations are known. In order to assess job-aspiration congruence, a smaller second set of men (labeled employed men in several tables) was created from the first by excluding those men who were not currently employed. The third set of men is yet smaller and includes only those men employed and expressing an aspiration in both the current and the previous year. This last set of men was used to examine and compare the categorical stability of aspirations and jobs over a one-year period.

The level congruence between aspirations and jobs is assessed by calculating the size of the gap between aspiration levels and job levels. For these analyses the full range of the status scale (not just the three broad groups) is used and a difference score between aspiration and job level is calculated. Evidence about the stability of job and aspiration levels is provided by showing the distributions of both in two consecutive years for the same men. In addition, mean levels of aspirations and jobs in both years are calculated.

Job-aspiration field congruence and the field stability of jobs and aspirations were assessed in parallel fashion. If jobs or aspirations fell in the same Holland category, they were classified as congruent or stable; if they fell in different categories, they were considered incongruent or not stable. The degree of congruence or stability within each of the seven age groups examined was summarized in two ways: by the percentage of men who were classified as congruent (percentage agreement) and by Cohen's (1960) kappa. Kappa is the ratio of observed proportionate agreement beyond chance to possible agreement beyond chance given the two marginal distributions across the six categories.

No significance levels are shown. The stratified sampling design used in the National Longitudinal Survey makes the usual formulas for the standard errors of kappa inappropriate. The issues investigated all involve trends in the magnitude of kappa across ages. The regularity in progressions is believed to be more important than statistical significance with these large samples.

To aid in assessing the congruence of jobs and aspirations, distributions of jobs held are shown in this chapter. The estimates differ somewhat from those shown in Chapter 7. The tables in Chapter 7 were based on all men who reported their job; the tables in this chapter are based only on men who reported their job and their aspiration. Thus, the case base is smaller for the estimates in this chapter. The two sets of estimates are quite similar, but the differences do remind us not to interpret small differences as being substantively important.

Results

Status Aspirations

Table 8.1 shows the percentage of men aspiring to different occupational status levels; results are presented separately by race for all men and for employed men only. More than half the white 16-year-olds want high-level jobs. A somewhat smaller percentage of 28-year-olds want high-level work, this decrease being partly a developmental and partly a cohort difference as was illustrated in Chapter 6. A smaller proportion of blacks want high-level jobs and the difference between 16- and 28-year-olds is larger than for whites. But as was illustrated before, cohort differences may also be larger for blacks. Among 28-year-olds, proportionately twice as many blacks as whites aspire to low-level jobs.

Insert Table 8.1 About Here

Table 8.2 shows the percentage of men who actually have jobs at the different levels. No more than half of the 16-year-olds are employed and the gap between their aspirations and jobs is large. Looking at the lower panel of Table 8.1, we see that half of them want high-level jobs but (looking at the lower panel of Table 8.2) almost none of them actually do. By age 28, the gap between aspirations and jobs has narrowed considerably for whites. The same picture of a large gap between aspirations and jobs which narrows with age is common to blacks as well. The major racial difference is that both aspirations and jobs are lower on the average among blacks and the gap between them is larger. Whites attain an average status level of 47 by age 28 in contrast to their mean aspiration level of 50; black jobs average 26 and black aspirations 39.

Insert Table 8.2 About Here

Table 8.3 examines the question of whether status aspirations actually change over one-year periods, or whether the age differences simply reflect cohort differences. It also provides an indication of when (at what ages) aspirations do change. White men may decrease their status aspirations somewhat during the high school years as indicated by the 4-point decrease in means for the 16-year-olds. However, the number of men in that group is small and later ages do not show similar changes. Differences from one age group to another among young men are probably due to slight cohort differences. There is no consistent pattern among blacks; some age groups show increases and others decreases. Differences between the age groups are probably the result of cohort effects or sampling error with these small samples.

Table 8.1

Percentage of All Men and of Employed Men Desiring Different Levels of Occupational Status and Mean Aspiration Level: By Race and Age. (Unweighted)

	Whites					Blacks				
Age	Lo	Mod	Hi	(N)	Mean	Lo	Mod	Hi	(N)	Mean
					All Men					
16	22.0	19.0	59.0	(691)	57.4	32.0	23.9	44.1	(306)	50.4
18	21.8	20.6	57.7	(1195)	56.6	34.8	23.6	41.6	(546)	48.0
20	19.6	20.7	59.6	(1187)	57.1	36.7	24.0	39.3	(412)	46.4
22	21.2	24.2	54.6	(1009)	54.6	36.5	21.1	42.4	(323)	46.2
24	22.1	22.5	55.3	(972)	53.9	47.4	20.5	32.1	(249)	39.4
26	23.2	26.1	50.7	(836)	51.6	48.7	22.1	29.1	(199)	39.5
28	27.1	24.4	48.4	(442)	50.0	54.0	15.0	31.0	(100)	38.7
					Employed Men Only					
16	24.4	21.3	54.3	(348)	54.6	37.7	21.9	40.4	(114)	48.5
18	28.5	22.7	48.8	(744)	51.7	38.7	24.2	37.0	(351)	45.3
20	24.2	24.4	51.4	(862)	52.6	38.6	24.5	37.0	(319)	44.6
22	22.0	25.7	52.4	(865)	53.1	39.3	20.7	40.0	(275)	47.8
24	23.3	22.9	53.8	(904)	52.7	47.4	20.6	32.0	(228)	39.2
26	23.6	26.3	50.1	(805)	51.2	49.2	23.0	27.8	(187)	39.0
28	26.9	24.5	48.6	(432)	50.2	53.2	14.9	31.9	(94)	39.2

Table 8.2

Percentage of All Men and of Employed Men Holding Different Status Levels of Work and Mean Status Level: By Race and Age (Unweighted)

	Whites						Blacks					
Age	Lo	Mod	Hi	Not Employed	(N)	Mean	Lo	Mod	Hi	Not Employed	(N)	Mean
					All Men							
16	41.0	9.0	0.3	49.7	(690)	--	32.0	4.9	0.3	62.7	(306)	--
18	41.3	16.7	4.2	37.7	(1195)	--	50.0	12.8	1.5	35.7	(546)	--
20	38.1	23.2	11.2	27.4	(1188)	--	57.3	16.3	3.9	22.6	(412)	--
22	36.0	27.8	21.9	14.3	(1008)	--	61.5	15.2	8.4	14.9	(322)	--
24	33.6	27.5	31.9	7.0	(972)	--	64.3	17.7	9.6	8.4	(249)	--
26	31.7	29.3	35.3	3.7	(836)	--	65.8	18.6	9.5	6.0	(199)	--
28	30.8	28.3	38.7	2.3	(442)	--	64.0	20.0	10.0	6.0	(100)	--
					Employed Men Only							
16	81.6	17.9	0.6		(347)	18.8	86.0	13.2	0.9		(114)	16.7
18	66.4	26.9	6.7		(744)	25.5	77.8	19.9	2.3		(351)	19.9
20	52.6	32.0	15.4		(862)	32.4	74.0	21.0	5.0		(319)	22.3
22	42.0	32.4	25.6		(864)	38.9	72.3	17.9	9.9		(274)	24.7
24	36.2	29.5	34.3		(904)	43.9	70.2	19.3	10.5		(228)	25.4
26	32.9	30.4	36.6		(805)	45.0	70.1	19.8	10.2		(187)	25.0
28	31.5	28.9	39.6		(432)	46.6	68.1	21.3	10.6		(94)	26.4

Note. Table includes only men expressing an aspiration in the current year.

Insert Table 8.3 About Here

Job status levels in two consecutive years are shown in Table 8.4. Mean status among whites increases several points on the average through the mid-twenties, at which time it begins to level off. The status differences between the age groups are largely associated with the fact that different proportions of men are represented in those groups. With older groups, a greater percentage of the men are working (and so are included in the table) and the men who have most recently entered the labor force tend to be more advantaged men and so take higher level jobs on the average than do men entering earlier. Blacks increase in status at only a slightly lower rate than do whites over the one-year periods. The differences between the age groups are smaller, however, indicating that new entrants do not raise the average status level much, if at all. Thus, the status difference between 16- and 28-year-olds is much smaller for blacks than for whites. It is also true, though, that cohort differences for blacks diminish the age differences that would otherwise show up, because younger cohorts are getting higher level jobs (see Chapter 6).

Insert Table 8.4 About Here

Tables 8.5 and 8.6 are particularly interesting because they summarize the major trends in the earlier tables and add detail on the size of the job-aspiration gap for different men. They also show to what extent changing jobs or changing aspirations closes the gap between jobs and aspirations. Table 8.5 shows the percentage of white men whose aspirations are lower than, equal to, or higher than the jobs they actually hold in two consecutive years.

The second column shows the percentage of white men whose jobs exactly match their aspirations. At all ages the proportion increases over the one-year period. The proportion of employed 16-year-olds with status-congruent

Table 8.3

Percentage of Employed Men Desiring Various Levels of Occupational Status and Mean Aspiration Level in Two Consecutive Years: By Race and Age (Unweighted)

		Whites					Blacks				
Age	Year	Lo	Mod	Hi	(N)	Mean	Lo	Mod	Hi	(N)	Mean
16	Previous	25.0	18.8	56.3	(160)	56.5	34.5	25.9	39.7	(58)	48.4
	Current	29.4	23.1	47.5		52.1	37.9	20.7	41.4		48.2
18	Previous	30.6	21.8	47.6	(454)	50.9	42.0	19.9	38.1	(181)	45.4
	Current	32.2	22.2	45.6		49.9	39.8	22.7	37.6		45.3
20	Previous	26.3	24.8	48.9	(601)	51.3	48.3	21.5	30.2	(205)	40.5
	Current	26.1	25.5	48.4		51.2	42.9	23.9	33.2		42.4
22	Previous	24.1	23.1	52.8	(646)	52.1	36.8	18.9	44.2	(190)	46.4
	Current	24.0	26.3	49.7		51.7	40.5	21.1	38.4		44.5
24	Previous	23.9	25.5	50.6	(741)	52.0	45.1	22.5	32.4	(182)	39.7
	Current	24.2	23.3	52.5		52.1	45.6	21.4	33.0		39.5
26	Previous	23.1	26.6	50.3	(676)	51.8	48.0	21.7	30.3	(152)	40.0
	Current	22.9	27.2	49.9		51.3	50.7	22.4	27.0		38.1
28	Previous	25.1	25.8	49.1	(395)	51.0	49.4	17.3	33.3	(81)	41.2
	Current	26.6	24.8	48.6		50.1	51.9	14.8	33.3		40.0

Note. Table includes only men employed and expressing an aspiration in both years.

Table 8.4

Percentage of Men Employed in Various Status Levels in Two Consecutive Years: By Race and Age (Unweighted)

		Whites					Blacks				
Age	Year	Lo	Mod	Hi	(N)	Mean	Lo	Mod	Hi	(N)	Mean
16	Previous	82.4	17.6	0.0	(159)	18.1	91.4	8.6	0.0	(58)	13.5
	Current	79.2	20.1	0.6		19.9	84.5	15.5	0.0		16.8
18	Previous	70.4	26.0	3.5	(453)	23.8	75.7	21.0	3.3	(181)	20.6
	Current	66.9	26.7	6.4		25.4	75.7	22.1	2.2		20.5
20	Previous	59.3	30.4	10.4	(599)	28.9	81.0	14.6	4.4	(205)	19.5
	Current	53.3	31.9	14.9		32.0	75.1	19.0	5.9		21.7
22	Previous	47.8	31.9	20.3	(646)	35.4	74.1	19.0	6.9	(189)	22.7
	Current	41.8	33.6	24.6		38.8	71.4	18.5	10.1		25.3
24	Previous	39.3	29.3	31.4	(741)	41.8	72.5	16.5	11.0	(182)	23.5
	Current	36.6	30.0	33.5		43.8	70.3	18.7	11.0		25.3
26	Previous	32.4	31.5	36.1	(676)	45.1	68.4	20.4	11.2	(152)	25.8
	Current	30.8	31.7	37.6		45.8	69.7	19.1	11.2		25.6
28	Previous	33.2	30.5	36.3	(394)	45.2	67.9	22.2	9.9	(81)	27.0
	Current	31.5	29.2	39.3		46.5	64.2	23.5	12.3		28.3

Note. Table includes only men employed and expressing an aspiration in both years.

jobs is quite low, but over 40% of 28-year-olds report holding a job that exactly matches their status aspiration. The first column shows the proportion of white men holding jobs of higher status than their aspiration. We would not expect many men to be in this category, but this proportion also increases over the year for all ages; the proportion is over 20% by age 28. Most of the men in this category are within 1-14 points of their aspiration (data not shown here), so this "surplus status" is not great.

The gap between job and aspiration which could be considered a "shortfall" is examined in more detail. Four levels of "shortfall" are identified: status aspirations which are 1-14, 15-29, 30-44, and 45+ points higher than job status. Almost half of the youngest men start out in the worst category--jobs being 45 or more points in status below their aspirations. Over the one-year interval, this proportion decreases. At each older age, the proportion of men in the unfavorable categories decreases. By age 28, about 80% of white men report having a job within 14 points (plus or minus) of their status aspiration. The last two columns show that this convergence of jobs and aspirations occurs largely because jobs have changed.

Table 8.6 presents analogous results for blacks. We find the same overall pattern. Jobs increase in status, aspirations are stable, and the proportion of men experiencing a large gap between aspiration and job levels decreases with age. The differences have already been noted earlier: blacks have lower aspirations and attainments on the average and the aspiration-job gap is larger than for whites. At age 28 only 68% of blacks versus 83% of whites have jobs within 14 status points of their aspirations.

Insert Table 8.5 and 8.6 About Here

Table 8.5

Gap in Status Between the Job Desired and the Job Actually Held in Two Consecutive Years: Whites by Age (Percentage)

Age	Year	Aspiration is lower than job	Aspiration equals the job	Aspiration is higher by this many points: 1-14	15-29	30-44	45+	(N)	Mean Status Job	Mean Status Aspiration
16	Previous	8.2	3.8	15.1	10.7	15.7	46.5	(159)	18.1	56.5
	Current	9.4	6.9	18.2	14.5	14.5	36.5		19.9	52.1
18	Previous	10.1	12.1	14.8	17.9	14.3	30.7	(453)	23.8	50.9
	Current	10.5	18.3	14.8	15.0	14.8	26.5		25.4	49.9
20	Previous	11.9	20.9	13.7	15.7	14.4	23.5	(599)	28.9	51.3
	Current	13.7	21.4	16.9	15.2	11.2	20.7		32.0	51.2
22	Previous	13.0	27.4	12.5	18.9	10.1	18.1	(646)	35.4	52.1
	Current	15.6	30.3	17.3	14.7	8.7	13.3		38.8	51.7
24	Previous	19.6	31.2	18.4	12.1	9.6	9.2	(741)	41.8	52.0
	Current	20.1	35.4	17.0	12.3	7.0	8.2		43.8	52.1
26	Previous	21.0	37.3	16.6	12.1	6.5	6.4	(676)	45.1	51.8
	Current	21.8	40.5	16.9	8.4	7.1	5.2		45.8	51.3
28	Previous	21.6	41.4	16.2	10.9	4.6	5.3	(394)	45.2	51.0
	Current	22.1	45.7	15.7	9.6	3.6	3.3		46.5	50.1

Note. Table includes only men employed and expressing as aspiration in both years.

Table 8.6

Gap in Status Between the Job Desired
and Job Actually Held in Two Consecutive Years
Blacks by Age
(Percentage)

Age	Year	Aspiration is lower than job	Aspiration equals the job	Aspiration is higher by this many points: 1-14	15-29	30-44	45+	(N)	Mean Status Job	Aspiration
16	Previous	1.7	3.4	27.6	15.5	17.2	34.5	(58)	13.5	48.4
	Current	6.9	1.7	31.0	15.5	10.3	34.5		16.8	48.2
18	Previous	11.1	7.7	24.3	17.7	15.5	23.8	(181)	20.6	45.4
	Current	9.9	6.6	24.3	22.7	14.9	21.5		20.5	45.3
20	Previous	11.2	13.2	24.9	16.1	13.7	21.0	(205)	19.5	40.5
	Current	12.2	16.1	19.0	18.0	13.2	21.5		21.7	42.4
22	Previous	8.5	14.8	25.4	11.1	13.8	26.5	(189)	22.7	46.4
	Current	13.7	17.5	20.1	21.7	9.0	18.0		25.3	44.5
24	Previous	13.1	19.2	26.9	12.1	13.2	15.4	(182)	23.5	39.7
	Current	17.5	22.0	24.7	12.6	11.5	11.5		25.3	39.5
26	Previous	15.2	24.3	27.6	13.2	5.9	13.8	(152)	25.8	40.0
	Current	11.9	30.9	27.0	13.2	6.6	10.5		25.6	38.1
28	Previous	11.1	33.3	19.8	14.8	8.6	12.3	(81)	27.0	41.2
	Current	12.3	35.8	19.8	9.9	11.1	11.1		28.3	40.0

Note. Table includes only men employed and expressing an aspiration both years.

Field Aspirations

Table 8.7 shows the percentages of white men in different age groups who aspire to each of the six fields of work. Percentages are shown separately for all men and for employed men,but the pattern is much the same for both groups. There is a large decrease in investigative aspirations--from a high of about 25% at age 16 to a low of about 10% at age 28. There are somewhat smaller absolute decreases in aspirations for artistic and social work. In contrast, there is over a twofold increase in the proportion of white men aspiring to enterprising work--from 12% to over 30%.

Blacks, shown in Table 8.8, differ from whites in that they more often aspire to realistic and conventional work and less often to investigative work when they are young. The major racial difference among older men is that blacks more often aspire to realistic and less often aspire to enterprising work than do whites. About three quarters of older men of both races, however, aspire to the major kinds of work men hold in our society--realistic and enterprising. Other research (G. Gottfredson et al., 1975; L. Gottfredson, 1978a) shows that women aspire to and hold very different types of work than do men.

Insert Tables 8.7 and 8.8 About Here

Table 8.9 provides some more clues about the kinds of changes in aspirations that occur and at what ages they occur among white men. This table examines the one-year stability of field of aspirations of men employed in both the current and previous years. Both the percentages of agreement and the kappas suggest that the stability of aspirations from year to year is much the same for employed men of all ages--though there may be a dip in stability in the early years after high school.

An examination of net changes in the aggregate distributions of aspirations in Table 8.9 shows that aggregate shifts are most pronounced among the

Table 8.7

Field of Aspirations for All Men and Employed Men:

Whites by Age

(Percent)

	Aspirations for Field of Work						
Age	R	I	A	S	E	C	(N)
				All Men			
16	36.0	26.6	7.4	14.2	12.4	3.3	(691)
18	34.4	17.4	9.0	16.9	17.2	5.1	(1195)
20	32.7	16.1	6.8	15.0	25.3	4.0	(1188)
22	35.2	12.2	5.8	15.6	26.6	4.6	(1009)
24	34.2	11.9	2.6	11.9	33.8	5.4	(972)
26	40.0	8.2	2.0	11.5	33.0	5.3	(836)
28	42.8	10.4	2.0	10.6	29.9	4.3	(442)
				Employed Men Only			
16	41.1	24.7	5.7	12.9	11.5	4.0	(348)
18	43.5	13.2	8.5	14.4	16.3	4.2	(744)
20	39.9	12.3	6.8	12.6	24.6	3.7	(862)
22	37.4	10.2	5.5	14.6	27.4	4.8	(865)
24	35.8	10.6	2.4	11.4	34.6	5.1	(904)
26	40.4	7.7	2.0	11.3	33.2	5.5	(805)
28	42.6	10.6	1.8	10.9	29.6	4.4	(432)

Table 8.8

Field of Aspirations for All Men and Employed Men:

Blacks by Age

(Percent)

	Aspirations for Field of Work						
Age	R	I	A	S	E	C	(N)
			All Men				
16	44.8	13.1	6.5	15.4	12.1	8.2	(306)
18	45.4	10.1	7.7	16.5	12.1	8.2	(546)
20	45.4	7.8	7.3	15.8	15.8	8.0	(412)
22	44.9	9.6	5.0	15.5	15.8	9.3	(323)
24	56.2	4.8	4.0	13.3	17.3	4.4	(249)
26	60.8	7.0	4.0	11.1	14.1	3.0	(199)
28	59.0	10.0	2.0	6.0	20.0	3.0	(100)
			Employed Men Only				
16	48.2	14.0	5.3	11.4	13.2	7.7	(114)
18	51.0	8.8	6.6	11.4	13.4	8.8	(351)
20	47.3	8.5	6.3	13.5	16.0	8.5	(319)
22	48.7	8.0	5.1	14.5	15.3	8.4	(275)
24	57.0	5.3	3.9	11.4	18.0	4.4	(228)
26	61.5	7.0	4.3	10.2	13.9	3.2	(187)
28	58.5	9.6	2.1	5.3	21.3	3.2	(94)

younger men. The most striking change is between ages 16 and 20 and involves a halving of the proportion of men who want to have investigative (e.g., scientific or medical) jobs and a doubling of the percentage who want enterprising (e.g., sales and management) work. Table 8.7 shows the same pattern of changes when the broader groups of men are considered, but it suggests that the shifts occur somewhat later for men who are not yet employed. The large shift out of investigative and into enterprising work occurs during the college-age years and is consistent with the science to nonscience shift among college majors found by Astin and Panos (1969). A decrease in aspirations for artistic work occurs among somewhat older men and is accompanied by the continued increase in interest in enterprising work.

Table 8.10 shows analogous results for blacks. The stability of field aspirations increases with age, but without the apparent dip experienced by whites just after high school. Stabilities are similar for the two races. Net changes in field aspirations during the one-year period are not as clear for blacks as they are for whites. Interest in investigative work generally drops during the year, with interest in enterprising work generally increasing.

Insert Tables 8.9 and 8.10 About Here

The types of jobs men hold has been discussed in Chapter 7, but they will be reviewed quickly here.

The top panel of Table 8.11 shows the percentage of white men who were employed and what type of work they held if they were employed; the lower panel excludes men not employed and shows the percentage of employed men who held each type of work. This table shows a steady change from age 16 to age 28 in the types of jobs held by young men. With increasing age a greater proportion of men are found in investigative, social, and especially enter-

Table 8.9

Field and Categorical Stability of Aspirations in Two Consecutive Years: Whites by Age

(Unweighted)

Age in current year	Year	Category of Aspirations						Categorical Stability of Aspirations		(N)
		R	I	A	S	E	C	% Agreement	Kappa	
16	Previous	40.0	27.5	7.5	11.3	11.3	2.5	72.5	.62	(160)
	Current	45.6	23.1	7.5	11.3	9.4	3.1			
18	Previous	45.6	17.0	6.4	15.0	12.6	3.5	67.8	.55	(454)
	Current	46.5	13.2	7.3	14.3	15.9	2.9			
20	Previous	44.4	10.6	7.5	11.6	20.6	5.2	69.9	.59	(601)
	Current	43.1	11.6	7.5	10.8	23.3	3.7			
22	Previous	38.2	12.2	6.0	13.9	26.2	3.4	71.5	.62	(646)
	Current	40.4	10.1	5.3	13.3	27.1	3.9			
24	Previous	39.0	10.7	2.7	12.0	30.5	5.1	73.4	.63	(741)
	Current	36.7	10.4	2.3	11.5	34.7	4.5			
26	Previous	37.6	9.5	2.2	11.4	33.0	6.4	75.6	.66	(676)
	Current	39.5	7.2	1.9	11.5	33.7	6.1			
28	Previous	40.8	7.6	1.5	11.1	33.9	5.1	81.0	.73	(395)
	Current	42.0	9.9	2.0	11.1	30.4	4.6			

Note. Table includes only men employed and expressing an aspiration in both the current and previous years.

Table 8.10

Field and Categorical Stability of Aspirations in Two Consecutive Years: Blacks by Age

(Unweighted)

Age in current year	Year	Category of Aspirations						Categorical Stability of Aspirations		(N)
		R	I	A	S	E	C	% Agreement	Kappa	
16	Previous	46.6	19.0	3.4	15.5	12.1	3.4	65.5	.51	(58)
	Current	50.0	15.5	5.2	15.5	6.9	6.9			
18	Previous	52.5	12.2	8.8	12.7	7.2	6.6	67.5	.53	(181)
	Current	52.5	8.8	7.7	10.5	12.2	8.3			
20	Previous	53.7	6.8	6.8	10.7	14.6	7.3	74.2	.62	(205)
	Current	50.2	8.3	5.9	13.2	15.1	7.3			
22	Previous	44.7	10.0	5.3	16.8	15.8	7.4	76.3	.67	(190)
	Current	49.5	8.4	5.3	15.8	12.1	8.9			
24	Previous	57.7	5.5	3.8	17.0	14.3	1.6	79.0	.67	(182)
	Current	55.5	4.9	4.4	12.6	18.7	3.8			
26	Previous	61.2	6.6	5.3	7.2	15.1	4.6	73.7	.55	(152)
	Current	62.5	6.6	3.9	9.9	13.2	3.9			
28	Previous	59.3	11.1	1.2	7.4	18.5	2.5	81.4	.69	(81)
	Current	58.0	7.4	2.5	6.2	23.5	2.5			

Note. Table includes only men employed and expressing an aspiration in both the current and previous years.

prising jobs. The distribution of work for men in their late twenties is similar to the distribution of jobs for all men reported by G. Gottfredson et al. (1975), suggesting that by the late twenties the overall distribution of men across types of work has stabilized.

Black men are shown in Table 8.12. As noted in the previous chapter, they do not enter as diverse a set of jobs as do white men. Almost 80% of all ages are in realistic work.

Insert Tables 8.11 and 8.12 About Here

The distribution of men across the different types of work can change both because men who become employed at older ages tend to enter different fields of work than do men becoming employed at an early age and also because men change jobs once employed. Table 8.13 shows the stability of the field of work held by the same white men over a one-year interval, and it indicates that some of the changes in the distribution of jobs among young men are a result of some men changing types of work. The major net shifts occurring at all ages are shifts out of realistic work and shifts into enterprising work. Percentage agreement does not vary much with age; about 20% of white men in all the age groups examined here change their category of work from one year to the next. The kappas, however, increase from .44 to .74 and indicate that categorical stability of work is higher among the older men.

Table 8.14 shows that small proportions of blacks also move out of realistic work--and some possibly into enterprising work--over one-year periods. Job stabilities are similar across the races. The initially low but increasing stability of field of actual work contrasts with the relatively high and constant level of stability in aspirations shown earlier in Tables 8.9 and 8.10. The major racial difference is probably that white men become

Table 8.11

Field of Work Held by All Men and by Employed Men Only: Whites by Age

(Percent)

Age	Field of Work						Not Employed	(N)
	R	I	A	S	E	C		
				All Men				
16	41.5	0.1	1.3	0.6	5.6	1.2	49.6	(691)
18	47.7	1.1	1.6	1.6	6.6	3.7	37.7	(1195)
20	48.2	3.0	2.1	2.7	10.8	5.6	27.4	(1188)
22	49.6	5.4	2.3	8.3	13.7	6.5	14.3	(1009)
24	46.5	8.3	1.5	8.4	21.2	7.0	7.0	(972)
26	48.8	8.2	1.6	9.1	21.9	6.7	3.7	(836)
28	45.7	8.8	2.0	10.0	25.8	5.4	2.3	(442)
				Employed Men Only				
16	82.5	0.3	2.6	1.1	11.2	2.3		(348)
18	76.6	1.7	2.6	2.6	10.6	5.9		(744)
20	66.5	4.2	2.9	3.7	15.0	7.8		(862)
22	57.8	6.2	2.6	9.7	16.0	7.6		(865)
24	50.0	9.0	1.6	9.1	22.8	7.5		(904)
26	50.7	8.6	1.6	9.4	22.7	7.0		(805)
28	46.8	9.0	2.1	10.2	26.4	5.6		(432)

Note. Table includes only men expressing an aspiration in the current year.

Table 8.12

Field of Work Held by All Men and by Employed Men Only: Blacks by Age

(Percent)

Age	Field of Work						Not	(N)
	R	I	A	S	E	C	Employed	
				All Men				
16	32.7	0.0	0.3	0.3	2.6	1.3	62.7	(306)
18	54.8	0.7	0.5	2.0	2.2	4.0	35.7	(546)
20	61.4	1.2	0.7	3.6	3.9	6.6	22.6	(412)
22	66.9	1.9	0.9	7.1	4.0	4.3	14.9	(323)
24	73.9	1.6	0.8	6.8	4.4	4.0	8.4	(249)
26	74.4	2.5	1.0	8.0	3.0	5.0	6.0	(199)
28	73.0	4.0	1.0	6.0	6.0	4.0	6.0	(100)
				Employed Men Only				
16	87.7	0.0	0.9	0.9	7.0	3.5		(114)
18	85.2	1.1	0.9	3.1	3.4	6.3		(351)
20	79.3	1.6	0.9	4.7	5.0	8.5		(319)
22	78.5	2.2	1.1	8.4	4.7	5.1		(275)
24	80.7	1.8	0.9	7.5	4.8	4.4		(228)
26	79.1	2.7	1.1	8.6	3.2	5.3		(187)
28	77.7	4.3	1.1	6.4	6.4	4.3		(94)

Note. Table includes only men expressing an aspiration in the current year.

more heterogeneous with age because new white entrants to the labor market tend to enter different fields of work than do early entrants. Blacks tend to enter realistic work no matter what age they are.

Insert Tables 8.13 and 8.14 About Here

Comparing the distributions of aspirations (Tables 8.7 and 8.8) to the distributions of actual jobs (Tables 8.11 and 8.12) is particularly interesting. Both the aspirations and the jobs of teenage men of both races differ substantially from the jobs held by older men--and thus from the jobs the teenagers are likely to hold later in their careers. If we assume that 16-year-olds will eventually obtain jobs like those held by 28-year-olds, this means that at most, 73% of the whites and 67% of blacks would be able to get their preferred fields of work. But by age 28, the distributions of both aspirations and jobs change, and they converge toward the distribution of jobs among older men. Convergence is greater for whites. By age 28 the maximum potential match between fields of job and aspiration is 94% for whites and 79% for blacks. Although some men may be able to realize their aspirations, it appears that a fair number have adjusted their goals for age 30 to be more in line with what they realistically expect they will be doing at that age.

Table 8.15 shows how much congruence there actually is among men at different ages. It shows that the degree of congruence increases regularly and substantially from age 16 to age 28. The percentage of employed white men who are employed in congruent jobs rises from 43% to 84%. When only agreement above that expected by chance is considered--that is, when kappas are examined--the change is even more dramatic. Percent agreement among blacks is about the same as for whites, but the kappas indicate that congruence above that expected by chance is lower for blacks than whites.

Table 8.13

Field and Categorical Stability of Work Held in Two Consecutive Years: Whites by Age

(Percent)

Age in current year	Year	Category of Work						Categorical Stability of Job		(N)
		R	I	A	S	E	C	% Agreement	Kappa	
16	Previous	76.9	0.0	3.8	0.6	12.5	6.3	78.8	.44	(160)
	Current	78.1	0.0	3.8	1.3	12.5	4.4			
18	Previous	77.8	1.1	2.9	1.8	10.6	5.9	78.2	.43	(454)
	Current	77.3	1.5	2.2	2.6	11.0	5.3			
20	Previous	74.0	2.2	2.5	2.2	12.3	6.8	75.4	.47	(601)
	Current	68.6	3.8	2.3	3.7	14.0	7.7			
22	Previous	63.0	6.0	2.8	6.8	13.2	8.2	76.6	.60	(646)
	Current	59.1	5.9	2.9	8.5	15.9	7.6			
24	Previous	52.4	8.2	3.2	10.3	18.8	7.2	82.3	.74	(741)
	Current	51.3	8.4	1.5	9.3	22.5	7.0			
26	Previous	49.4	8.1	0.9	10.2	22.2	9.2	81.4	.73	(676)
	Current	49.1	7.8	1.3	9.6	24.4	7.7			
28	Previous	49.1	8.4	1.5	10.4	24.8	5.8	82.0	.74	(395)
	Current	46.8	8.9	2.3	10.6	25.8	5.6			

Note. Table includes only men employed and expressing an aspiration in both the previous and current years.

Table 8.14

Field and Categorical Stability of Work Held in Two Consecutive Years: Blacks by Age

(Percent)

Age in current year	Year	Category of Work						Categorical Stability of Job		(N)
		R	I	A	S	E	C	% Agreement	Kappa	
16	Previous	93.1	0.0	0.0	0.0	6.9	0.0	87.9	.31	(58)
	Current	87.9	0.0	0.0	0.0	10.3	1.7			
18	Previous	82.3	1.1	1.1	2.2	6.1	7.2	83.0	.43	(181)
	Current	84.0	0.6	0.6	3.3	4.4	7.2			
20	Previous	82.4	1.0	1.5	4.4	3.9	6.8	85.4	.55	(205)
	Current	80.5	2.0	1.0	4.9	5.9	5.9			
22	Previous	81.1	1.6	1.6	4.7	5.8	5.3	84.2	.57	(190)
	Current	77.4	2.6	1.6	7.9	6.3	4.2			
24	Previous	81.3	1.6	0.5	8.8	4.9	2.7	86.7	.59	(182)
	Current	81.9	1.1	1.1	8.2	4.9	2.7			
26	Previous	80.9	2.0	2.0	7.2	5.3	2.6	88.9	.68	(152)
	Current	78.9	3.3	0.7	9.2	3.3	4.6			
28	Previous	79.0	4.9	1.2	4.9	4.9	4.9	90.1	.75	(81)
	Current	75.3	4.9	1.2	6.2	7.4	4.9			

Note. Table includes only men employed and expressing an aspiration in both the previous and current years.

Table 8.15 does not show changes in congruence for the same set of men over early career because the seven age groups are composed of somewhat different sets of men. Table 8.16, however, shows increases in congruence over a one-year period for the same men. The table shows that aspiration-job congruence increases over the one-year interval for men of each age. In short, Tables 8.15 and 8.16 both suggest that job-aspiration congruence increases steadily among employed men and is quite high by the late twenties among whites. And as just stated above, blacks appear less able to get the fields of work they prefer. This was also the case with status level of work.

Insert Tables 8.15 and 8.16 About Here

Summary

Aspiration-job match increases dramatically with age, even above that predicted as potentially possible when the aspirations of youngsters are compared with the jobs actually likely to be available to them. When field of work is considered, it appears that both jobs and aspirations change and converge towards each other with age. I see this as an accommodation to the realities of the labor market. Although 20-30% of men in all age groups change their field aspiration over a one-year period, their adjustment as a group to the constraints of the labor market--that is, to the realities of what jobs are most and least available--seems to occur by age 20 or 22.

Whether or not men have changed their ambitions for later years of their careers is unknown, but they are likely to have done so because they have altered their earlier goals for field of work. Furthermore, they have altered their aspirations so that they conform much more closely to the jobs that have apparently been available to men in our society.

This adjustment is not surprising, of course. And from a societal perspective, it is desirable that workers be happy with the jobs they must

Table 8.15

Congruence of Field of Aspirations and of Actual Jobs: By Race and Age

(Unweighted)

Age in current year	Aspiration-Job Congruence				(N)	
	% Agreement		Kappa			
	Whites	Blacks	Whites	Blacks	Whites	Blacks
16	42.5	43.9	.11	.00	(348)	(114)
18	49.2	52.8	.20	.14	(744)	(351)
20	53.4	52.6	.32	.21	(862)	(319)
22	60.3	57.8	.44	.29	(865)	(275)
24	67.8	65.4	.55	.33	(904)	(228)
26	75.4	72.7	.65	.45	(805)	(187)
28	84.0	68.2	.77	.39	(432)	(94)

Note. Table includes all men employed and expressing an aspiration in the current year.

Table 8.16

Congruence of Field of Aspirations and of Actual Jobs in Two Consecutive Years: By Race and Age

(Unweighted)

Age in current year	Year	Aspiration-Job Congruence % Agreement		Kappa		(N)	
		Whites	Blacks	Whites	Blacks	Whites	Blacks
16	Previous	36.9	46.6	.06	.04	(160)	(58)
	Current	46.2	44.8	.14	.00		
18	Previous	47.4	51.5	.16	.12	(454)	(181)
	Current	52.0	52.6	.22	.13		
20	Previous	53.9	56.2	.28	.19	(601)	(205)
	Current	55.7	56.2	.33	.24		
22	Previous	57.4	52.1	.40	.22	(646)	(190)
	Current	63.6	60.1	.48	.32		
24	Previous	68.6	65.3	.56	.31	(741)	(182)
	Current	69.1	66.3	.56	.36		
26	Previous	71.6	69.0	.60	.37	(676)	(152)
	Current	76.8	76.4	.67	.52		
28	Previous	81.8	72.8	.74	.47	(395)	(81)
	Current	83.8	69.1	.77	.42		

Note. Table includes only men employed and expressing an aspiration in both the previous and current years.

fill--that they want the jobs they have or can get. But the massive shifts in aspirations raise some interesting questions. How difficult is it to change field of aspirations? Vocational theory implies that shifting aspirations involves a shift in one's basic conception of oneself. The analyses show that the major net changes in aspirations are from investigative to enterprising work--which is a particularly difficult shift in terms of Holland's theory--and they continue among men late into their twenties. Furthermore, who is best able to realize their aspirations? Early deciders or the vocationally mature? The most talented? The well-educated or the well-to-do? And when does this adjustment of aspirations most often occur? When making decisions about college before even taking a job? When taking one's first job? Or is it gradually coming to terms with or coming to like a job one once thought only a way station to another destination? Some of these ques-are examined in later chapters.

When we consider status of work, the picture is different. Although many men find jobs by age 28 similar in status to what they desire, this convergence is achieved in a different way than with field of work. Men change primarily their jobs, not their aspirations. The possibility still exists, however, that status aspirations have been adjusted "toward reality" at younger ages than surveyed here. This is possible because men from different SES and ability groups have very different aspirations, as was shown in Chapter 6 (and which will be illustrated further in Chapter 11). This would mean that men perceive opportunities and adjust their aspirations to those opportunities earlier for status than for field. But whenever or however it happens, a large proportion of men (particularly white men) end up saying they have the status and field of work they want. About 84% of white men and 68%

of black men at age 28 say they have the field of work they want; the same proportions report having status levels with 14 points of their goal for age 30.

One other impression given by the results thus far is that development among the population of black men appears to stop or slow down at earlier ages than it does for whites. The 16-year-olds are quite similar in occupational and educational development. By age 20-22, educational and occupational attainment tend to level off among blacks. Whites, however, continue to increase on the average in educational attainment. Partly for this reason, they also continue to increase in occupational status and to enter more diverse fields of work until ages 24-26.

Chapter 9

ASPIRATIONS: HOW IMPORTANT ARE THEY IN DETERMINING LATER JOBS?

Much of vocational pyschology is devoted to understanding and assessing the vocational interests, values, and maturity of individuals so that counselors may better help clients plan for careers. The Strong-Campbell Interest Inventory (Campbell, 1971), the Self-Directed Search (Holland, 1979), and the Career Maturity Inventory (Crites, 1973a) are examples of the numerous inventories that have been developed to assess client characteristics. As career theorists have begun to focus more on the implementation and not just the formation of vocational choices, they have begun to think more about the conditions in the environment that thwart the implementation of career goals and about the means by which people cope with these conditions (Crites, 1976; Krumboltz, Mitchell, & Jones, 1978). Counseling practice and theory nevertheless only marginally acknowledge that the career development of individuals takes place within a broader competition for a limited number of good jobs or jobs of a particular type.

One indication of the foregoing is the widespread assumption in vocational psychology that aspirations for particular types of work play a significant role in determining the kinds of jobs people eventually obtain. It may be, however, that vocational aspirations instead are largely reflections of the kinds of employment experiences people have had, and they may not function as important determinants of future behavior (cf. Roberts, 1968). The jobs that many people enter may be determined in large measure by fortuitous circumstances and the hiring practices of local employers, e.g. by the availability of particular jobs and training programs in the local labor market, by the information about job vacancies possessed by the social networks of which clients are members, and the preferences of employers for hiring employees of a particular race, sex, social class, or personal appearance. At the very least, we would expect that the careers of people from some socioeconomic groups or particular geographic areas might be especially susceptible to direction or disruption by social conditions beyond their control.

As was discussed in Chapter 2, this is one of the areas where key assumptions differ between the status attainment and congruence approaches to career development. The former is inclined to stress the role of opportunities as they are structured by the environment and the latter stresses the role of personal choices. Another disagreement between the two approaches is about the importance of status versus field in the calculations of individuals. This chapter examines those disagreements. It begins by confronting the congruence approach assumptions--that choices are important and that field of work is a central concern--with the status attainment view that one's constraints and opportunities are important. This leads to a consideration of whether field or level is more salient to individuals. Thus, this chapter takes the congruence point of view and systematically challenges it with the fundamental assumptions of the status attainment approach. The results also provide us with the last piece of our description of career development--the relation of aspirations and jobs over time.

The Issues

The labor market limits the opportunities available to workers and young people beginning their careers must in some way adjust to this reality. One illustration of this is the disparity between the jobs young people say they want and the distribution of jobs actually held by workers older than themselves. Analyses in Chapter 8 showed that the fields of aspirations held by 16-year-olds diverged markedly not only from the jobs they themselves held, but also from the jobs held by men in their late 20's. Examining successively older cohorts, results showed that aspirations and jobs gradually converged towards each other and towards the distribution of jobs held by older men. Aspiration-job congruence for field of work rose steadily and substantially from age 18, and by age 28 about 84% of white men and 68% of black men reported being in fields of work congruent with their aspirations. These results suggested that many men may have changed their aspirations to accord with the jobs available to them. They also suggested that the career development of large sections of the population would be better understood if more systematic attention were paid to characteristics of the labor markets people face in addition to characteristics of the individuals themselves.

A few studies have examined the validity of categorical aspirations or measured interests for predicting later field of actual job (Dolliver, Irvin, & Bigley, 1972; Zytowski, 1974; Lucy, 1976; Worthington & Dolliver, 1977; Dolliver & Will, 1977), and have shown that predictive validities are high enough to be of practical importance. But we might ask how predictive these aspirations are compared to other possible determinants of future jobs, such as one's academic attainment, one's work history or current job setting, and so on. Aspirations may be quite predictive of later job, but still be less predictive (an possibly less important causally) than other attributes of individuals or their environments.

The following analyses take a first step in testing the importance of field aspirations relative to opportunities in determining the course of career development. The major hypothesis being tested is that field of work is determined more by circumstances in the environment and one's opportunities than by one's aspirations. I cannot test this "opportunities hypothesis" directly, because I have no direct measures of what job opportunities and barriers the men actually faced. I can test the hypothesis indirectly, however. If the hypthesis is true, we should expect to find the following.

Hypothesis 1: Incongruence between category of job and aspiration is resolved more often by changing aspirations than by changing category of work.

Hypothesis 2: One's current job rather than one's current aspiration is more predictive of the kind of work a person will be doing several years hence.

Hypothesis 3: Aspirations are less predictive of later jobs among people with presumably fewer opportunities to obtain good jobs than among more advantaged people; specifically, lower-class men should have more difficulty fulfilling their categorical aspirations than do middle-class men; and blacks should have more difficulty than whites. As we shall see, the results suggest a modified and more complex opportunities hypothesis. But I begin here with the original hypothesis; I will describe the evolution of the hypothesis as I proceed to test the specific hypotheses and interpret the results.

Method

The predictive validities of field of aspiration and of field of job were examined for five age groups: men 15-16, 17-18, 19-20, 21-22, and 23-24 in 1966. Men were included in the analysis only if they were employed in both 1966 and 1971. Aspirations and jobs in 1966, 1967, 1968, 1969, and 1970 were then compared to the job held in 1971. It should be noted that the jobs analyzed for 1967 through 1970 actually refer to the current job or to the last job if not currently employed. One limitation should also be noted. Because a smaller percentage of 15-16 year olds than of older men are employed, the younger groups include smaller percentages of the men from those age groups. The percentages of each age group included in the analyses of predictive validity are respectively 44, 61, 73, 86, and 92. This difference in inclusiveness should be kept in mind when evaluating the results.

The one-year categorical stability of jobs and aspirations is examined using results from Chapter 8 which used a somewhat different set of age groups. Those men were examined without regard to cohort--that is, without regard to which year it was they were a particular age. Those age groups are relabelled in this chapter so that the age refers to the beginning of the one-year period (i.e., ages 15, 17, 19, 21, 23, 25, and 27), rather than to the second year of the period (i.e., 16, 18, and so on).

All three types of variables--job-aspiration congruence, the categorical stability of jobs and aspirations over one year, and the predictive validity of jobs and aspirations over one to five years--were assessed in parallel fashion. If jobs or aspirations fell in the same Holland category, they were classified as congruent (job vs. aspiration) or stable (job vs. job, aspiration vs. aspiration); if they fell into different categories, they were considered incongruent or not stable. The degree of congruence, stability, and predictive validity was summarized using Cohen's (1960) kappa. (See Chapter 8 for a description of kappa.)

For the analysis of differential effects by socioeconomic background, men were divided into two groups according to the occupational level of the respondent's father when the respondent was aged 14. The men whose fathers held jobs with Duncan (1961) socioeconomic index (SEI) scores below 30 were classified as coming from lower-class backgrounds; those with fathers having SEI scores of 30 or above were classified as coming from middle-class backgrounds.

Testing the Hypotheses

Which is more stable over time--category of aspiration or category of job?

Figure 9.1 provides information about the relative one-year stability of category of job and of category of aspiration from age 15 to 27. The stability of both aspirations and jobs increases with age, and is consistent with the results from other studies (e.g., G. Gottfredson, 1977; Byrne, 1975). For purposes of this chapter, however, the more interesting result is that among the youngest white men, aspirations are more stable than are jobs, but the reverse is true of men aged 23 and older among whites and men 25 and older among blacks. Stabilities are similar for both races.

Insert Figure 9.1 About Here

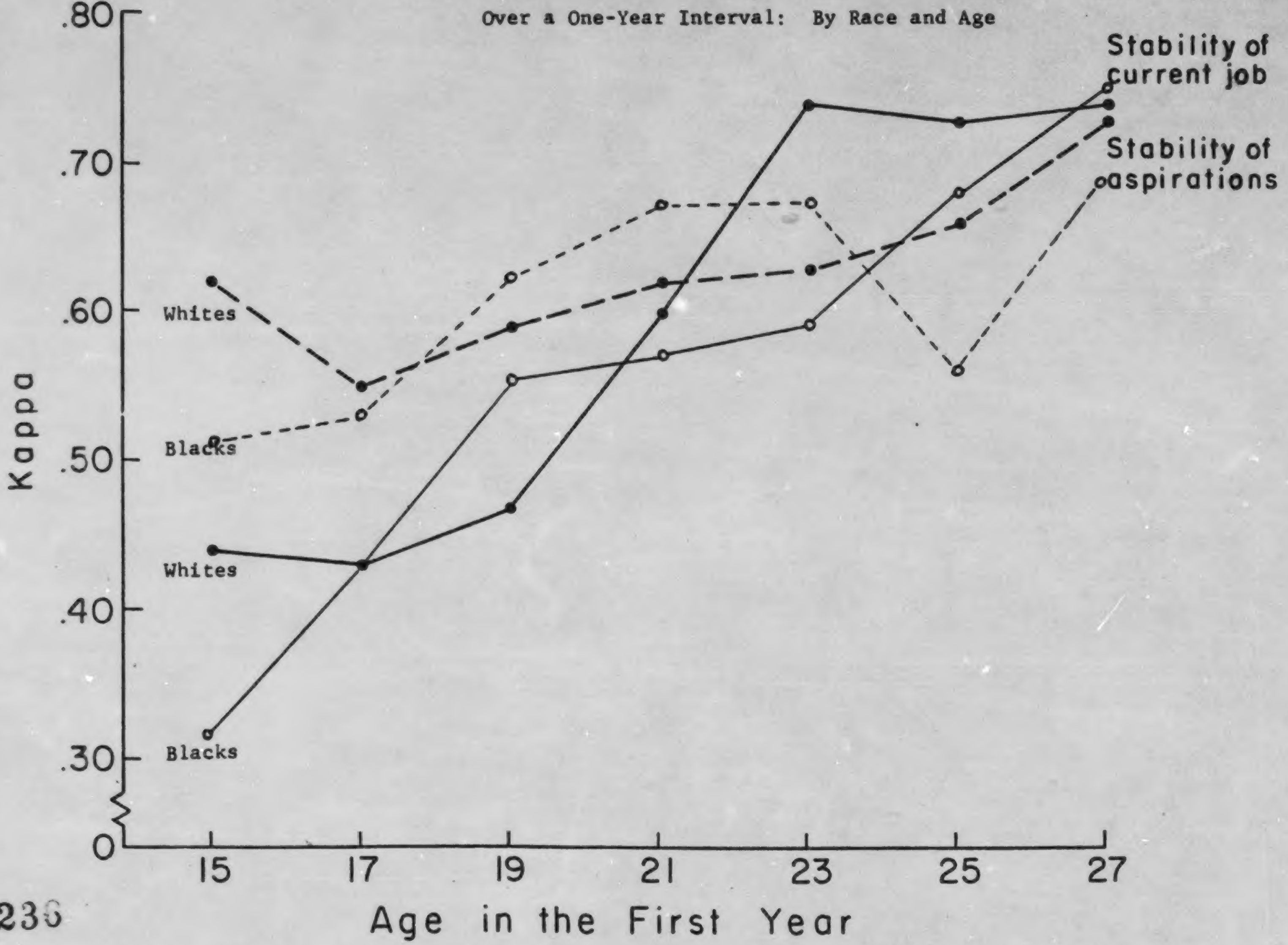
How is incongruence resolved--by a change of aspiration or a change of job?

Figure 9.2 shows several types of information about the development of congruence with increasing age. The upper line shows the proportion of white men whose category of aspirations and of jobs are incongruent in one year who become congruent the next. (There were not enough blacks for a comparable analysis.) It reveals that the proportion of incongruents becoming congruent increases from about .3 in the teens to .5 by the late twenties. The more basic question--is congruence achieved more often by changing aspirations to match jobs or vice versa?-is answered by the lower two lines. These lines separate the men into three groups according to how aspiration-job congruence was achieved: by changing jobs to match aspirations (the group shown between

Figure 9.1

Categorical Stability of Aspirations and Type of Job

Over a One-Year Interval: By Race and Age



the upper two lines), by changing aspirations to match jobs (the middle group), and by changing both aspirations and jobs (the lowermost group). These results indicate that changing aspirations to match previous field of job is the most common mode of achieving congruence, that the reverse (changing job to match aspiration) is less common, and that changing both jobs and aspirations is the least common mode of resolution. This is true for all age groups. If we average across all age groups (from data not shown here), we find that 52% of the men achieved congruence by changing field of aspiration, 35% by changing field of actual job, and 13% by changing both.

These results are consistent with Hypothesis 1.

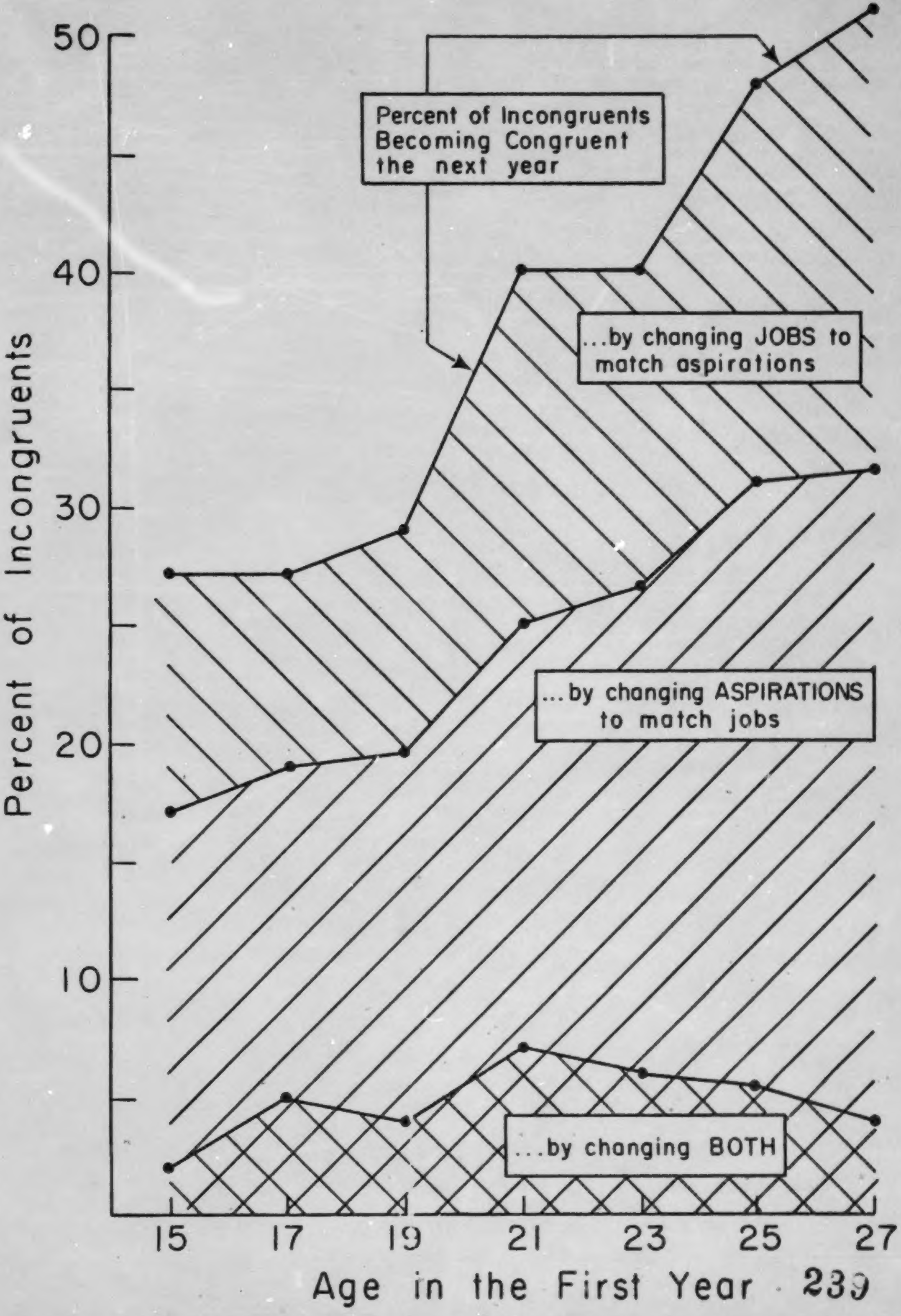
Insert Figure 9.2 About Here

Which predicts later job better--early aspiration or early job?

Table 9.1 presents results on the relative ability of field of aspirations and of jobs held at each of five annual interviews (1966-1970) to predict the field of job held by white men at the sixth interview (1971). These results extend findings of other studies (McLaughlin & Tiedeman, 1974; Worthington & Dolliver, 1977); the predictive validities of aspirations and of current (or last) job increase with age and decrease with the length of the interval over which the prediction is made. The table also indicates that predictive validities are higher for aspirations than for jobs in some groups of men but higher for jobs in other groups. Specifically, early field aspirations predict 1971 jobs better than do early jobs only when men are very young _and_ when the interval is three years or longer. Note, however, that the kappas are low for these groups, that is, that predictability is low for both jobs and aspirations (cf. G. Gottfredson, 1976). For the other groups of men, one's current (or last) job--not one's current aspiration--

Figure 9.2

Changes from Incongruence to Congruence Over a One-Year Interval and Mode by Which Congruence is Achieved: Whites



is the better predictor of later job category. The differences in predictive validities for jobs versus aspirations are greatest when the interval is short.

Insert Table 9.1 About Here

Table 9.2 presents the results for blacks. The number of cases is small, so the estimates are not stable. Nevertheless, several observations can be made. Predictive validities of jobs increase as the interval over which predictions are made decreases, but this is not clearly the case with aspirations. In general, predictive validities--whether for jobs or aspirations--are lower for blacks than whites.

Insert Table 9.2 About Here

Figure 9.3 summarizes the trend in predictive validity more clearly. This figure is produced by averaging the kappas for the five different age groups, ignoring differences in the interval over which predictions are made. For example, the average job kappa shown for the 19-20 year old group was obtained by averaging three kappas: the 1970 job kappa for men 15-16 in 1966, the 1968 job kappa for men aged 17-18 in 1966, and the 1966 job kappa for men 19-20 in 1966. The average interval over which predictions are made is three years, except for the three youngest groups where it is larger and the three oldest groups where it is smaller. This figure is admittedly a rough portrayal of the trend, but it does neatly summarize the results. Figure 9.3 shows that although predictive validities are low among the youngest men, they are nevertheless somewhat higher for current aspiration than for current (or last) job for both blacks and whites. Predictive validities rise with age, but more so for job than for aspiration during the mid-twenties. As predictive validities for jobs become quite high, that is, as men enter their

Table 9.1

The Validity of Current Job[a] and of Current Aspiration for Predicting Later Job[b] Over One- to Five-Year Intervals: Whites by Age and Survey Year

(Kappas)

Age in 1966	Year in Which Job or Aspiration was Measured to Predict 1971 Job									
	1966		1967		1968		1969		1970	
	K	(N)	K	(N)	K	(N)	K	(N)	K	(N)
Job										
15-16	.10	(180)	.04	(171)	.14	(166)	.36	(155)	.40	(164)
17-18	.22	(279)	.27	(237)	.35	(212)	.41	(208)	.54	(253)
19-20	.33	(236)	.41	(208)	.51	(204)	.63	(210)	.71	(224)
21-22	.43	(296)	.48	(283)	.56	(284)	.72	(286)	.73	(286)
23-24	.49	(393)	.59	(377)	.64	(387)	.67	(384)	.72	(391)
Aspiration										
15-16	.13	(181)	.14	(154)	.23	(149)	.36	(139)	.32	(144)
17-18	.28	(281)	.34	(214)	.39	(194)	.41	(194)	.35	(230)
19-20	.37	(238)	.49	(190)	.46	(187)	.46	(191)	.47	(195)
21-22	.34	(298)	.41	(257)	.42	(264)	.48	(259)	.51	(260)
23-24	.48	(396)	.51	(339)	.53	(369)	.59	(364)	.63	(358)

[a] Current job refers in 1967, 1968, 1969, and 1970 to current job or to last job if not currently employed. The table includes only men who were employed in both 1966 and 1971. N's are lower in intervening years because some men were not located or were in the military those years.

[b] The job predicted was the job held in 1971.

Table 9.2

The Validity of Current Job[a] and of Current Aspiration for Predicting Later Job[b] Over One- to Five-year Intervals: Blacks by Age and Survey Year

(Kappa)

Age in 1966	Year in Which Job or Aspiration Measured									
	1966		1967		1968		1969		1970	
	K	(N)	K	(N)	K	(N)	K	(N)	K	(N)
					Job					
15-16	.25	(78)	.03	(78)	.16	(73)	.23	(71)	.36	(71)
17-18	.10	(80)	.14	(69)	.14	(60)	.36	(56)	.50	(70)
19-20	.12	(74)	.08	(67)	.37	(58)	.42	(61)	.45	(70)
21-22	.82	(55)	.50	(50)	.64	(49)	.75	(54)	.88	(55)
23-24	.36	(74)	.32	(70)	.47	(73)	.70	(69)	.72	(73)
					Aspiration					
15-16	.00	(80)	.11	(67)	.08	(68)	.14	(62)	.26	(52)
17-18	.17	(81)	.38	(58)	.31	(54)	.30	(50)	.16	(60)
19-20	.08	(75)	.07	(58)	.13	(52)	.12	(58)	.02	(61)
21-22	.33	(56)	.37	(41)	.35	(45)	.24	(51)	.31	(48)
23-24	.43	(75)	.43	(65)	.37	(66)	.44	(64)	.47	(67)

[a] Current job refers in 1967, 1968, 1969, and 1970 to current job or to last job if not currently employed. The table includes only men who were employed in both 1966 and 1971. N's are lower in intervening years because some men were not located or were in the military those years.

[b] The job predicted was the job held in 1971.

late twenties, aspirations among whites (though not for blacks) appear to "catch up" again in predictive validity as they begin to fall in line more closely with the actual job.

Insert Figure 9.3 About Here

The results for men in their twenties are consistent with Hypothesis 2. The results for men in their teens are not consistent with the hypothesis, but at these younger ages predictive validities are low for both jobs and aspirations. The results are also consistent with Hypothesis 3; aspirations predict later field of work more poorly for blacks than for whites.

Are aspirations less predictive of later jobs among lower SES men?

Predictive validities were also calculated separately for white men from lower status and those from higher status backgrounds. Most black men are from lower status backgrounds so the analyses could not be repeated for blacks. Results are presented in Table 9.3 and show that the patterns of kappas are similar in the two groups. The hypothesis had been that aspirations would predict later job better among the higher status men because they would face fewer obstacles in implementing their aspirations. The results were not as predicted by Hypothesis 3. Possible explanations of these results are discussed below.

Insert Table 9.3 About Here

Although an analysis of longer intervals would be desirable, the results for the one- to five-year intervals do provide insights into changes occurring during the critical exploratory and settling-in phases of career development. The stability and congruence of field of jobs and aspirations increase with age. The increase for aspiration-job congruence is marked during the twenties

Figure 9.3

The Validity of Earlier Aspirations and Jobs for Predicting Category of Later Job: By Race and Age

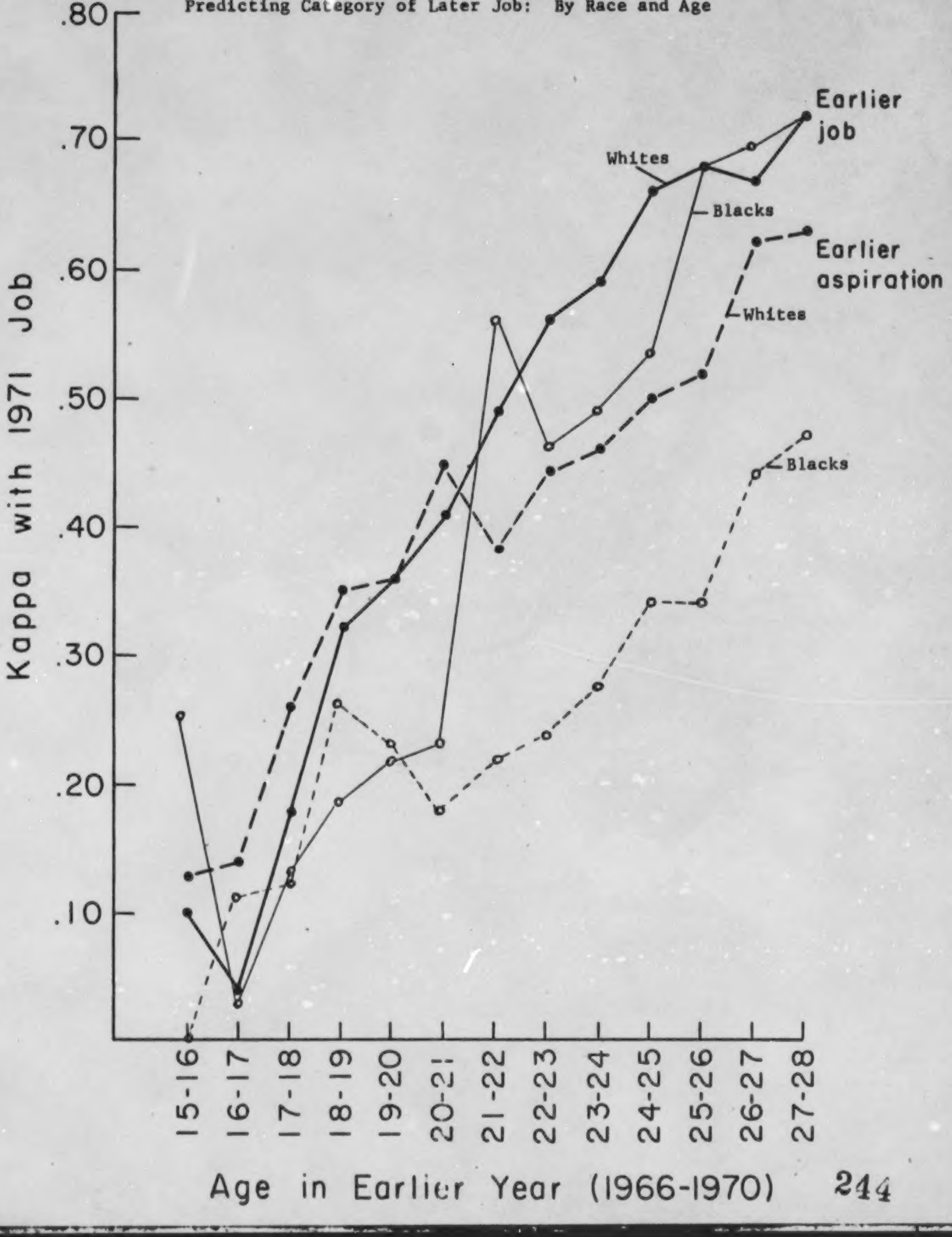


Table 9.3

The Validity of Current Job[a] and of Current Aspiration for Predicting Later Job[b] over One- to Five-Year Intervals: Whites by Age, Survey Year, and Social Class (Kappa)

Age in 1966	Year in Which Job or Aspiration Measured									
	1966		1967		1968		1969		1970	
	K	(N)	K	(N)	K	(N)	K	(N)	K	(N)
Job										
Lower-class men										
15-16	.17	(89)	.01	(86)	.22	(81)	.27	(77)	.42	(79)
17-18	.21	(133)	.26	(116)	.38	(100)	.45	(95)	.55	(121)
19-20	.31	(121)	.43	(103)	.54	(107)	.65	(111)	.75	(116)
21-22	.38	(142)	.41	(135)	.52	(135)	.71	(138)	.66	(140)
23-24	.50	(202)	.58	(196)	.62	(202)	.73	(198)	.75	(199)
Middle-class men										
15-16	.00	(81)	.01	(75)	.07	(75)	.34	(69)	.34	(76)
17-18	.20	(134)	.25	(112)	.32	(105)	.35	(103)	.52	(121)
19-20	.30	(101)	.36	(91)	.48	(84)	.58	(85)	.64	(94)
21-22	.46	(134)	.53	(128)	.58	(129)	.73	(128)	.76	(126)
23-24	.44	(171)	.57	(161)	.63	(165)	.60	(167)	.65	(172)
Aspiration										
Lower-class men										
15-16	.08	(90)	.14	(78)	.31	(73)	.31	(71)	.25	(70)
17-18	.34	(134)	.36	(102)	.42	(92)	.45	(86)	.40	(111)
19-20	.31	(122)	.39	(98)	.43	(96)	.45	(102)	.41	(104)
21-22	.28	(144)	.28	(123)	.34	(124)	.43	(123)	.44	(120)
23-24	.40	(203)	.47	(171)	.48	(191)	.60	(189)	.58	(177)
Middle-class men										
15-16	.14	(81)	.11	(66)	.17	(66)	.37	(60)	.34	(66)
17-18	.21	(135)	.30	(103)	.38	(95)	.35	(99)	.30	(109)
19-20	.33	(102)	.46	(79)	.43	(78)	.42	(75)	.46	(79)
21-22	.41	(134)	.54	(116)	.49	(123)	.53	(117)	.59	(121)
23-24	.49	(173)	.48	(150)	.51	(160)	.53	(158)	.61	(162)

[a] Current job refers in 1967, 1968, 1969, and 1970 to current job or to last job if not currently employed. The table includes only men who were employed in both 1966 and 1971. N's are lower in intervening years because some men were not located or were in the military those years.

[b] The job predicted was the job held in 1971.

and congruence is high by late twenties, though higher for whites than blacks. The relatively higher stability of aspirations than of jobs among the youngest men makes sense because these men are both experimenting with different types of work and they are more likely than men in the mid- and late-twenties to have part-time or temporary jobs while they obtain the necessary education or training to pursue their job aspirations. The relatively higher stability and predictive validity of jobs than of aspirations among the older men makes sense because as men age they are both increasingly socialized by their current job environment and increasingly realize that they may be unlikely to overcome the barriers to realizing their goals. Cognitive dissonance in the face of restricted opportunities, some of which may result from the tendency of potential employers to pigeonhole prospective employees according to their past work experience, may also operate to produce changes in aspirations. Consequently, men in their mid- and late-twenties are more likely than are younger men to change their goals to reflect their current job situation. But whatever the explanation, it appears that men settle into jobs before they settle into goals.

The results also provide hints about the answer to the much more complex question of the relative importance of aspirations as determinants--rather than mere reflections--of career development. The major conclusion from the results is that even though aspirations may sometimes predict later jobs, they generally predict later field of work more poorly than do earlier jobs. Although it is true that in a few cases aspirations are more predictive of jobs one to five years later among men aged 18 or younger, the predictions are lowest in these cases with kappas ranging from .13 for a five-year interval to .41 for a two-year interval for whites and from .00 to .38 for blacks.

As predictive validities exceed .5 for whites and .4 for blacks, jobs are the better predictors. As careers are becoming more stable (as indicated by the stabilities in Figure 9.1), predictions from aspirations one year earlier are poorer than predictions from field of job held several years earlier. In addition, Figure 9.2 showed that person-job congruence is achieved most often by modifying aspirations rather than the jobs, suggesting that men often accommodate to constraints in their environment by changing their goals. Together, these results suggest that field aspirations are weaker determinants of direction of career development than are the circumstances associated with past career development.

The support for Hypothesis 1 about methods of achieving congruence, the qualified support for Hypothesis 2 on predictive validities, and the support for the racial differences in Hypothesis 3 provide some indirect evidence for the general "opportunities hypothesis." However, the results are not consistent with the part of Hypothesis 3 about social class differences in the predictive validity of aspirations. Possible explanations for this pattern of results are explored below.

Possible Explanations and New Hypotheses

The implications of these results for both vocational theory and practice depend on *why* we find this pattern.

Poor decision-making. One point of view might be that even though field aspirations are not currently important in determining the career development of many young people, perhaps they *could* be in the future with proper counseling. A theorist or counselor interested in career decision-making skills might say that these young men have demonstrated poor decision-making and so have become locked into careers they need not have been. While this may be the case for some men, two pieces of evidence suggest that this explanation is not the major one for most men.

First, we know that lower-class students get lower scores than do higher status students on tests of vocational maturity (LoCascio, 1974). If poorer decision-making skills do lead to poor vocational choices, we would expect the aspirations of lower-class students (who are the poorer decision-makers) to be less reliable predictors. But our results indicated that the categorical aspirations of lower-class men are no less predictive than are those of middle-class men. Second, and more important, a decision-making skills explanation assumes that better decision-making skills can help most men to avoid the circumstances which limit their career development. But this is doubtful for men in general. As previous analyses in Chapter 8 and elsewhere (G. Gottfredson et al. 1975) have demonstrated the types of jobs available in society are limited and thus so are the possibilities for fulfilling early aspirations. This suggests that even if every one had good decision-making skills, some would still have to be employed in jobs they would not choose.

Limited opportunities--a more complex model

To maintain the "opportunity hypothesis" clearly requires a more complex model than initially proposed here, because predictive validities of aspirations are the same for white men with fewer opportunities (lower-class men) as they are for white men with more opportunities. A resolution to this puzzle may rest with the possibility that the aspirations most important to these men were not even measured in the study. Aspirations for field of work were measured but we might hypothesize the following:

Hypothesis 4: Aspirations for level of work are more important to men and thus are more tenaciously sought than are aspirations for field of work.

Finding work congruent with one's interests may provide strong intrinsic rewards, but extrinsic rewards such as prestige and pay are associated primarily with level of work. Indeed, economic and sociological theories of occupational attainment often implicitly assume that socioeconomic rewards are the only occupational rewards that individuals seek. Although I do not agree with this position, it is possible that many people place higher priority on finding a job that provides a given level of socioeconomic rewards than one which meets a person's vocational interests. It must be noted that research on what makes a job good or bad does not support this hypothesis. For example, Jurgensen (1978) found that among job applicants to a public utility company over the last 30 years, type of work has always been specified as more important than pay and has surpassed advancement and security to become the most highly sought job factor. If we consider, however, that men (this volume deals only with men) often determine the standard of living of their families and are evaluated by their families partly on that basis, we might expect that many men are compelled to strive for a given socioeconomic level to meet social expectations. Although men might personally prefer intrinsic rewards, these rewards are entirely personal and might be more easily sacrificed than the extrinsic rewards important to family members. So if a trade-off between aspirations for field and aspirations for level of work is necessary, we speculate that men will opt for the latter.

There is also support for this idea from Chapter 8. Tables 8.11 and 8.12 showed that over one-year periods, there was sometimes considerable net change in aspirations for field of work; for example, aspirations for investigative work dropped and those for enterprising work increased. In contrast, Table 8.3 showed that over the same one-year periods the same men showed little or no net change in their aspirations for status level.

On the basis of the new Hypothesis 4, a modified Hypothesis 3 that substitutes level for field of work is proposed. Hypothesis 3a: Men with presumably fewer opportunities are less likely than more advantaged men to fulfill their occupational status aspirations as they face the realities of a restricted job market; specifically, lower-class men have greater difficulty attaining their aspirations for level of work than do middle-class men.

The reasoning was that if aspirations for level are more persistent than are aspirations for field of work, we might find that differential opportunities of lower- and middle-class men result in the latter group being better able to attain their goals than the former--even though both groups are similarly unable to attain fields of work consistent with earlier aspirations. This hypothesis holds for racial differences. Table 8.5 showed that the gap between aspiration and job level is considerably larger for blacks than for whites. It must be remembered, though, that Table 6.11 showed that blacks tend to aspire to higher levels at work than do whites of comparable IQ and SES. The relative job-aspiration status gaps for blacks and whites are examined further in Chapter 11.

The data for examining Hypothesis 3a and Hypothesis 4 are shown in Figure 9.4 and in Table 9.4. Figure 9.4 shows the mean status level of jobs aspired to and of jobs held by white men of different ages and in the two social classes. This figure was constructed in the same way that Figure 9.3 was (from averages of men at the same ages but born in different years) and it includes the same men. (Figure 9.3 showed trends in predictive validities for field of work).

Insert Figure 9.4 About Here

Figure 9.4

Mean Status of Aspirations and of Jobs for White Men of Different Ages and Socioeconomic Backgrounds

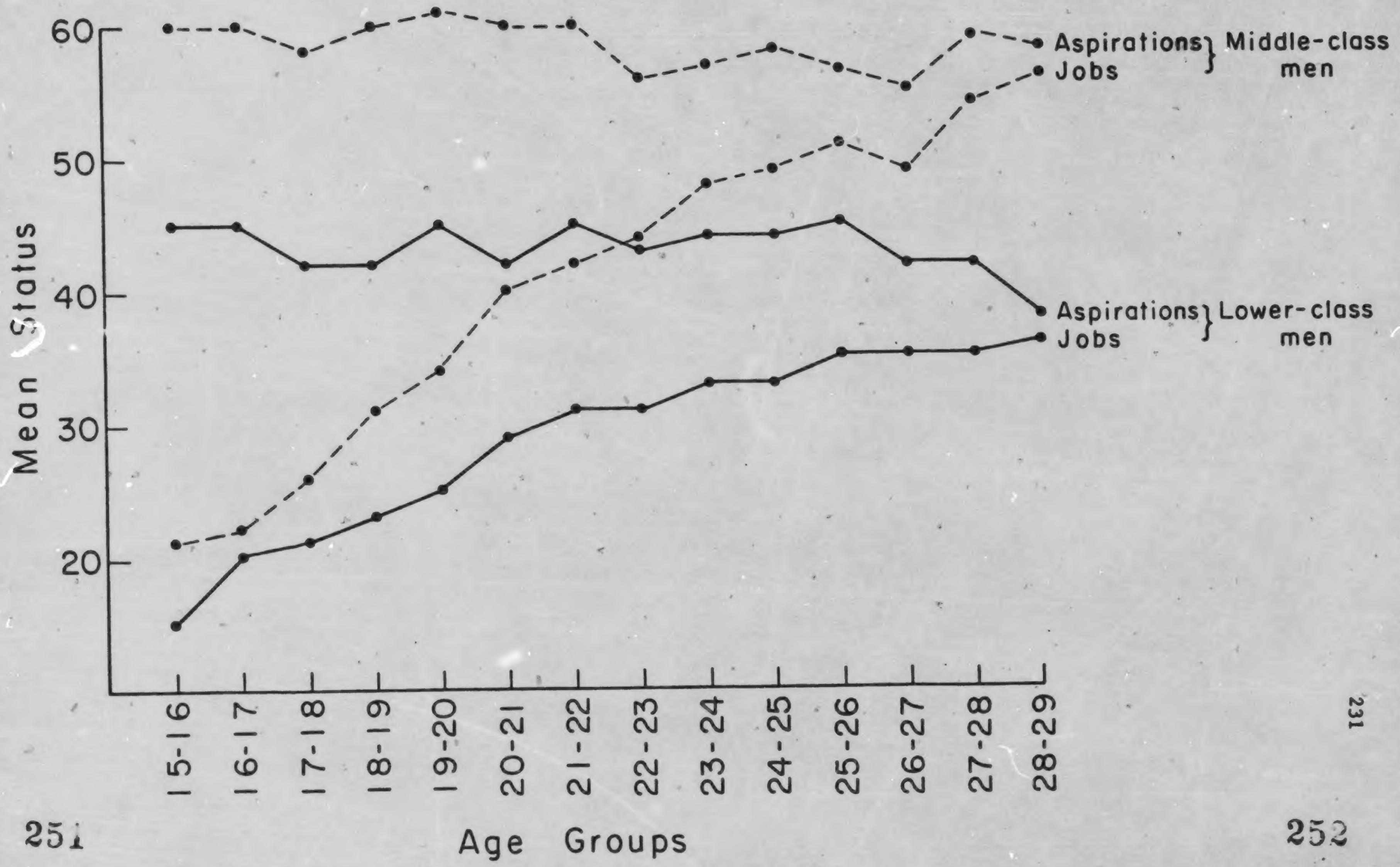


Figure 9.4 indicates that the mean aspiration levels of both lower-class and middle-class white men are extremely stable over almost the full age range. This further supports the contention of Hypothesis 4 that men stick tenaciously to their status aspirations.

Figure 9.4 also shows that the gap between aspirations and actual job narrows with age because job level is higher with age. By the late twenties, the gap is small for both lower- and middle-class men. Thus, in contrast with how the gap between aspirations for field of work and actual field of job is closed, nearly all of the adjustment of the gap between aspiration and job *levels* is because mean *job* status levels increase during the early years of working life. This same conclusion was reached in Chapter 8 (Tables 8.5 and 8.6).

However, the data in Figure 9.4 are not as supportive of Hypothesis 3a--that lack of opportunities restrict the ability of lower-class men to attain their aspiration levels more than they restrict middle-class men. It does appear at first glance that the teenage aspirations of middle-class white men are more nearly met by their late twenties than is the case for lower-class men. For example, the mean level of aspiration for middle-class men aged 16-17 in Figure 9.4 is only 4 points higher than the mean job level actually attained by middle-class men aged 28-29 (60 vs. 56) while the comparable difference for lower-class men is 9 points (45 vs. 36).

The various age groups in Figure 9.4 do not represent the same birth cohorts, however, and they include different fractions of the cohorts they do represent. Table 9.4 provides a more careful test of this hypothesis, because it shows the results for each of five birth cohorts separately.

Insert Table 9.4 About Here

Table 9.4

Mean Status of Aspirations Held in 1966 and of Jobs Held in 1971: By Social class background and age in 1966

Age in 1966	Aspiration in 1966	Job in 1971	Mean Difference	(N)
		Lower-class men		
15-16	45	29	16	(89)
17-18	41	29	12	(133)
19-20	43	33	10	(121)
21-22	47	36	11	(142)
23-24	44	36	8	(202)
		Middle-class men		
15-16	60	36	24	(82)
17-18	57	43	14	(135)
19-20	63	50	13	(101)
21-22	58	46	12	(134)
23-24	59	56	3	(171)

Note. Table includes only men employed and expressing an aspiration in both years.

Hypothesis 3a is not confirmed by the results in Table 9.4. Table 9.4 shows the mean level of occupational aspirations in 1966 and the mean level of actual job status in 1971 for each cohort (defined by age in 1966) and the two social classes. Only men employed and expressing an aspiration in both years are included. For only the oldest cohort, men aged 23-24 in 1966, is the match between earlier aspirational level and later level of job attainment better for middle-class men than for lower-class men. For the younger cohorts, the mean differences are larger for the middle-class men than for the lower-class men.

One conclusion from these results is that the job opportunity differential between lower-class men and middle-class white men is not that great because both appear to equally fulfill their initial status aspirations. But the fact is, of course, that throughout the developmental period covered here, the aspirations of the two social class groups are very different. The mean aspirations of the lower-class men are considerably lower than the mean aspirations of the middle-class men. In fact, by the mid-twenties, middle-class men hold higher level jobs on the average than lower-class men even aspire to.

If differential opportunity is an important factor in the relative ability of lower and middle-class white men to attain their job aspirations, it must be that white men adjust their aspirations to perceived barriers and opportunities long before they enter the labor market. These results are consistent with much sociological research in the last three decades on social class differences in values, expectations, and aspirations (e.g., Kahl, 1953; Wilson, 1959; Gottlieb, 1964; Antonovsky, 1967; Sewell, Haller, & Straus, 1957; Sewell & Haller, 1965; Sewell & Shah, 1968a, 1968b). That research has consistently shown that lower class youngsters have lower occupational and educational aspirations. Some evidence (Stephenson, 1957; Han, 1969; Rodman & Voydanoff, 1978) also suggests that people of different social classes do not differ much in the level of work they wish they could do if they faced no constraints (fantasy occupations), but they do differ in the opportunities they perceive and in their expectations of what they will actually be able to do (possible or probable occupations).

On the basis of the foregoing results on level of work, two additional hypotheses are proposed for future research. Hypothesis 5: Aspirations for level of work differ by social class because men base their status aspirations largely on their perceptions of what sorts of jobs people of their social position typically get. Hypothesis 6: Aspirations for level of work are circumscribed in childhood and change little thereafter. These two hypotheses are speculative, but consistent with the results here for white men. The cohort differences discovered in Chapter 6 for blacks, however, suggest that if there is a major change in the environment or in how men perceive it, men will change their aspirations towards that new reality.

Summary

At this point it would be helpful to review the results and the conclusions to which they eventually led.

(1) Congruence of field of job and aspiration was achieved more often by changing aspirations to match jobs than vice versa. Also, earlier aspirations for field of work generally were not as useful as field of earlier jobs for predicting jobs one to five years later. Aspirations predict later jobs better among whites than among blacks.

(2) Lack of opportunity rather than lack of decision-making skills was proposed as a more satisfactory explanation of those results.

(3) The lack-of-opportunity hypothesis was questioned when it was found that there are no differences in the predictive validity of category of aspiration for white men from different social classes although we would expect their opportunities to differ.

(4) Additional analyses suggested that opportunities do indeed play a role, but it was not apparent in the earlier analyses because:

(a) Aspirations for level of work appear more stable on the average than do aspirations for field of work, supporting the hypothesis that level of work is more important than field of work (the latter being the measure of aspirations in the early analyses).

(b) Lower-class men aspire to lower level jobs than do middle-class men and the aspirations of both groups are quite stable, suggesting that young men have circumscribed their choices in response to their social position and at earlier ages than were examined here. Unless the environment changes in major ways, men do not change their status aspirations much.

Thus the answer to the question "How important are aspirations in determining career development?" depends on which type of occupational aspiration we consider--aspirations for field of work or aspirations for level of work. If we consider field of work I conclude that circumstances (i.e., earlier jobs) rather than aspirations may be more potent determinants of later actual job field, and that many men adjust their aspirations to match their jobs. If we consider level of work, the picture may be different. I did not examine the predictive validity of earlier job level realtive to aspiration level, but did show (Figure 9.4) that on the average the two social class groups had almost attained their aspired-to occupational levels by ages 28-29. I also showed that the levels they aspired to were quite different and that mean levels of aspirations did not change much over the ages examined, which is consistent with other literature showing that aspirations for level of work differ by social class in childhood as well as in adolescence. My speculation is that men get the level they seek on the average, but they have learned early in life what level is probably feasible for someone of their social position. To what extent outcomes are determined by these aspirations rather than the social constraints that determine these aspirations is an empirical question. As will be discussed later, there is a sociological literature that specifically examines this question.

Chapter 10

WHAT DETERMINES HOW MEN ARE DISTRIBUTED TO JOBS?

Career development in the first ten years after high school in large measure forecasts the course of the remaining decades of a person's career. During these years, young people make vocational choices and compete not only for the jobs they desire but also for the required education and training. Some youngsters are able to establish themselves in their preferred careers, but many find themselves rooted in low-level, uninteresting, or dead-end jobs.

Congruence models and other psychological theories of career development deal with this critical early period of career development and many hypothesize different stages of development (Super, 1957, 1968; Ginzberg et al., 1951; Levinson et al., 1974; Joordaan, 1974). For example, Super (1968) proposes the following stages (although the first three are most relevant to the first decade after high school): growth, exploration, establishment, maintenance, and decline. These theories stress the dynamics of career development and have generated much interest as well as some research.

As helpful as these theories may be in the long run, it is worthwhile noting that they deal with the development of individuals. Indeed, most theoretical and empirical work in vocational psychology is concerned with the individual. The theories have had little to say about what happens to populations of individuals. If we think of all the stages of development or all the employment situations that different people in a population (e.g. a particular age group) might be in, we could ask what proportion of that population is in each of these situations. Such knowledge would be useful for understanding what problems or situations are normative for different groups, the client problems counselors can expect to confront in different treatment settings or populations, and the modal or common patterns of career development that might exist.

This chapter examines the population of NLS men in their first decade after high school. Specifically, I examine how the kind of work they hold is related to several educational and family background characteristics. Before describing the analyses it is useful to introduce a few concepts. The emphasis on populations as a way of looking at vocational development requires a set of concepts to characterize the evolution of a population; current developmental concepts such as the stages described above usually apply only to individuals. There are many concepts we could use to describe career development processes in populations, but I will focus here on two that stress the dynamics of development: differentiation and distribution.

I use the term differentiation to refer to the process by which individuals in a population become increasingly differentiated or different from one another in personal job-relevant characteristics such as level of educational attainment, type of training, kinds of work, experience acquired, or kinds of jobs held. Another way of stating this concept is to say that it refers to the process by which people in a group become more heterogeneous. Some aspects of differentiation have already been described in earlier chapters. To avoid confusion it should be noted that the term differentiation has been used in other contexts of vocational development, though usually with a different meaning. Differentiation is a central concept in Holland's (1973) theory of careers, but it refers to the peakedness of a person's profile of interests (i.e., the extent to which an individual is clearly interested in some fields rather than others). Developmental theorists sometimes use the term differentiation when they speak of the formation of self-concept or identity. In this context, differentiation is the process by which the child comes to differentiate himself from his environment and to recognize how he is similar to or different from other people. This usage is related to my definition, because it reflects the person's recognition of differences among individuals and perhaps the person's efforts to become more different from others in his environment.

I use the term distribution to refer to the process by which individuals are sorted, or sort themselves, into jobs. This concept presupposes an occupational structure consisting of a fairly fixed number and variety of jobs to which people are distributed. Distribution processes encompass the shifting of individuals into and among these positions in the structure. Knowing something about what types of people are distributed (or distribute themselves) to different positions in the structure helps us predict what will happen to different types of people if the distribution processes remain the same. It also provides clues about what attributes of people and jobs are most important in explaining the distribution patterns we find, and how strongly people's backgrounds are linked to later attainment.

Much research has been done on the differentiation and distribution of populations during career development, but most of it has been conducted in disciplines other than psychology--and has not been directly related to concerns in vocational or counseling psychology. One exception is the Career and Occupational Development assessment of the National Assessment of Educational Progress that assessed vocational knowledge, attitudes, and interests in 9-, 13-, 17-year-olds, and young adults (e.g., see Tiedeman, Katz, Miller-Tiedeman, & Osipow, 1977). Previous work of mine and my colleagues (G. Gottfredson, et al., 1975; G. Gottfredson, 1977; G. Gottfredson & Daiger, 1977; L.Gottfredson,1878a, 1978b)employment patterns has also been an exception.

The distribution (also referred to as the allocation) of people to jobs has been a central concern in sociology for two decades, usually under the rubric of social stratification and intergenerational mobility (of which status attainment is one approach). That field has dealt primarily with differentiation and distribution along a vertical dimension--occupational prestige or status--which was discussed in Chapter 2. The research nevertheless clearly reveals some major dimensions along which people are sorted. In this research,estimates are often made of the degree to which sons "inherit" the occupations of fathers and of the relative importance of socioeconomic versus educational or intellectual advantages in determining occupational status attainment. For example, status attainment researchers have provided much evidence that years of education, IQ, and socioeconomic background (though primarily the former) are major criteria by which people are sorted, or sort themselves, into different levels of work (Alexander & Eckland 1975; Duncan, Featherman & Duncan, 1972; Sewell & Hauser, 1975, 1976; Sewell, Hauser & Featherman, 1976). The correlation of fathers' and sons' adult occupational status is generally .3 to .4 and the correlations of sons' status with sons' years of education and IQ are, respectively, .6 and .4.

Although the fact that sorting by education and family background occurs is well documented, the rate at which it occurs has not been systematically investigated. And as mentioned above, most previous sociological studies of distribution have concentrated on status of work and ignored field or type of work, although the latter is of particular interest in vocational and counseling psychology. For example, the following questions about differentiation and distribution have received little attention. How does the field and status of work people typically do change during their first decade out of high school? Earlier chapters have provided a portrait of how the fields and levels of work men are employed in changes during their twenties. Those analyses had little to say, however, about the background of the men who ended up in different kinds of work, that is, about distribution processes. Another question is, how rapidly and evenly does distribution according to socioeconomic and educational advantage proceed? As noted above, there is ample evidence that distribution according to these attributes does occur, but we know little about at what rate it occurs and how far advanced it is by different ages.

This chapter examines such questions. In particular, for different ages between 16 and 28, it examines the extent to which men become increasingly differentiated from one another in job-related attributes, and assesses the importance of various personal and family characteristics for distributing men to different fields and levels of work.

Method

Data

Measures of social background, mental ability, and educational attainment were included in the analyses because they have received the most attention in previous sociological studies of the distribution of people to jobs. Socioeconomic background was measured by mother's and father's years of education and father's occupational status when the respondent was 14 years of age. Mental ability test scores were obtained from the last high school attended. Scores were not all from the same test (about 30 tests are represented), so scores were standardized to a common metric (Herriott and Kohen, 1974). The scale used in these analyses consisted of a 9-point scale indicating the stanine in which the IQ score was estimated to fall. Measures of educational attainment included high school curriculum (college preparatory or not) and years of education completed. Respondents were also characterized according to whether or not they reported being currently enrolled in school and whether or not they had ever received any vocational or technical training. Each of these variables was assumed to influence the type and level of work held. Father's field of work, the respondent's aspirations for status and field of work (in the previous year), and the respondent's job values (measured in 1966) were also included in some analyses. Job value referred to whether the respondent placed more emphasis on making money than on liking a job as a reason for choosing jobs; it might be considered a measure of preference for extrinsic versus intrinsic job rewards. Years of education, vocational training, and respondent's occupational type and status of work change from year to year for many men; in these analyses the most recent measure of each of these variables is used. IQ, job value, and parental variables were recorded only once in all the survey years.

Analyses

All analyses are performed separately for each age group to show the progress of occupational differentiation and distribution with age, and they are designed to reveal the process of distribution to jobs according to the socioeconomic and educational background of the men. They include (a) correlations of status of the men's current or last job with background variables, (b) percentage of men with high IQ's in the different fields and levels of work, and (c) discriminant analyses (Overall and Klett, 1972) among the seven major occupational groups. The first distribution analysis is designed to show how occupational status attainment becomes increasingly associated with background variables among older men. The second distribution analysis with IQ illustrates several aspects of how this association increases and how it is related to field as well as to level of work. The third analysis examines which background factors best distinguish among men in the seven major occupational groups. The discriminant analyses are discussed further below.

Regression analysis has typically been used to estimate multivariate models of occupational attainment because the criterion of occupational achievement has generally been a status score on a single vertical dimension. The occupational groups in this analysis could not be ordered on a single scale because some of the groups differ by field but not by level of work. Differences among the seven categories of work were therefore examined using discriminant analysis because this method of analyzing differences among groups does not assume any single hierarchical ordering. The object of these analyses is to see if the educational and family characteristics associated with working in one group rather than another change from one age to another, to ascertain which of these characteristics are most useful in distinguishing among men in the different groups, and to ascertain if different fields of work at the same status level draw different kinds of men.

Five different models of how employment is determined are compared. Model 1--the basic model--consists of variables suggested by the status attainment approach. These include parents' level of education and father's occupational status as well as respondent's IQ, years of education completed, vocational training, high school curriculum, and school enrollment status. Models 2 and 3 add variables to the basic model that the congruence approach would suggest as important. Model 2 includes father's field of work as well as the variables from Model 1. Father's field is coded into four dummy variables: investigative versus other, social versus other, enterprising versus other, and conventional versus other. Almost all the fathers not in one of these four fields of work were in realistic work. Model 3 includes the respondent's job value as well as the variables in Model 2. Job value refers to respondents saying they prefer jobs because they pay well rather than because they like them. Models 4 and 5 add aspirations to more basic models: Model 4 includes aspirations for status of work; Model 5 adds aspirations for field of work. Status aspirations were coded according to Duncan's SEI scores. Aspirations for field of work were represented by four dummy variables: investigative, social, enterprising, and conventional aspirations.

To maintain reasonable sample sizes for the discriminant analyses, values were imputed for missing data for all variables in Model 1. Means for the variables were calculated separately for each occupational group within each age group, and men with missing data were assigned the mean value for their own age-occupational group. The percentages of cases with missing data in the seven occupational groups varied by predictor and sometimes by age group: years of education and current enrollment status--0%; father's occupational status--5 to 7%; father's and mother's education--increasing, respectively, from 12 and 5% to 28 and 15% with age; IQ--20 to 31%; and training--decreasing from 39 to 8% with age.

Imputing the mean score for the group is not the ideal way to impute missing data. Hertel (1976) has argued that it is better to impute a score chosen at random from other members of that group for which data are present or to use a regression procedure to predict the missing score rather than to impute the mean for that group. Imputing the mean artificially enhances the discriminability of the groups. This effect is easily visualized by realizing that imputing the mean contributes only to variance between the groups and not at all to variance within those groups. I chose the less ideal group-means method for reasons of cost. Although this results in overestimating the differences between men in the different groups, the overestimation probably is rather small. The results to be presented later show that by far the most important discriminating variable is years of education, but no data are missing for that variable. Other discriminators--particularly IQ and vocational training--must be interpreted more cautiously because of the high rates of missing data on those variables.

The statistic kappa (Cohen, 1960) is used to assess the ability of the discriminant functions to predict occupational group membership. Kappa is a measure of categorical agreement and it indicates the degree of greater-than-chance agreement. The relative abilities of the five models to predict employment are compared using kappa.

Results

Differentiation in Employment and Education

Earlier chapters illustrated several ways in which men are differentiated in their early career development: they enter the labor force at different ages, and they are eventually distributed into varying fields and levels of work. Tables 10.1 and 10.2 reveal other aspects of differentiation with age, the former for whites and the latter for blacks. The upper panels of these tables present the means and standard deviations for several key characteristics: respondent's occupational status, years of education, and IQ as well as father's status and education. The tables include all men for whom labor force status is known and therefore includes men who are not employed as well as men who are. Respondent's occupational status refers to the current or last job and so excludes the few men who report never having had a job. (No data were imputed for missing values in this analysis.) The means and standard deviations in Table 10.1 show that white men continued to become more differentiated by education until age 22. Although mean occupational status increased until age 28, variation in status may have stabilized around ages 24 to 26.

Insert Tables 10.1 and 10.2 About Here

Several other results in this panel should be noted. Mean IQ and father's status and education were lower with increased age of the sons. Earlier chapters have indicated that there are cohort differences in IQ. The differences among fathers are not surprising because higher IQ men tend to have higher status and better educated fathers. In addition, there may be cohort differences among fathers. Cohort differences in the respondent's characteristics work in the opposite direction as do developmental differences in these NLS age groups, so the effect of cohort differences is to underestimate somewhat the differentiation that occurs with age. And although there are cohort differences in mean levels, there is no reason to expect that relations among the variables have changed.

There may also be cohort differences in IQ and father's SES among blacks, but this is not clear in the upper panel of Table 10.2. Another

Table 10.1

Means, Standard Deviations, and Correlations for Socioeconomic Background and Occupational Status[a]: Whites by Age

Means and Standard Deviations

Age	Respondent's Status [b]			Respondent's Education			Respondent's IQ [c]			Father's Status			Father's Education		
	$\overline{X}$	SD	(N)	$\overline{X}$	SD	(N)	$\overline{X}$	SD	(N)	$\overline{X}$	SD	(N)	$\overline{X}$	SD	(N)
18	23.9	17.1	(1424)	11.8	1.4	(1480)	5.8	1.7	(1027)	38.3	24.3	(1385)	10.9	3.5	(1323)
20	30.3	20.5	(1386)	12.7	2.0	(1414)	5.8	1.7	(1156)	39.1	24.4	(1320)	10.8	3.4	(1241)
22	36.6	23.2	(1154)	12.9	2.5	(1167)	5.5	1.8	(939)	38.1	24.1	(1087)	10.5	3.5	(968)
24	42.4	24.9	(1088)	12.8	2.8	(1098)	5.4	1.7	(846)	37.0	24.0	(1033)	10.1	3.6	(872)
26	43.7	24.7	(918)	12.8	2.9	(922)	5.3	1.6	(689)	36.4	23.9	(870)	9.9	3.6	(703)
28	45.4	25.4	(480)	12.9	2.9	(483)	5.2	1.7	(368)	35.5	23.8	(460)	9.8	3.6	(364)

Correlations of Respondent's Occupational Status[b] with:

Age	Respondent's Education		Respondent's IQ		Father's Status		Father's Education	
	r	(N)	r	(N)	r	(N)	r	(N)
18	.17	(1424)	.14	(992)	.13	(1334)	.15	(1272)
20	.20	(1385)	.13	(1133)	.16	(1291)	.13	(1212)
22	.45	(1153)	.32	(930)	.24	(1073)	.21	(957)
24	.60	(1087)	.38	(838)	.32	(1021)	.35	(865)
26	.64	(917)	.43	(689)	.31	(865)	.35	(698)
28	.65	(480)	.45	(368)	.41	(457)	.36	(361)

---

[a] Table includes only men for whom labor force status (i.e., employed, unemployed, or not in the labor force) is known.

[b] Occupational status is for current job if employed and is for last job if not currently employed.

[c] Stanine scores.

Table 10.2

Means, Standard Deviations, and Correlations for Socioeconomic Background and Occupational Status[a]: Blacks by Age

Means and Standard Deviations

ge	Respondent's Status			Respondent's Education			Respondent's IQ[c]			Father's Status			Father's Education		
	$\bar{X}$	SD	(N)	$\bar{X}$	SD	(N)	$\bar{X}$	SD	(N)	$\bar{X}$	SD	(N)	$\bar{X}$	SD	(N)
8	19.2	14.8	(652)	10.8	1.9	(674)	3.6	1.7	(277)	16.8	13.8	(567)	7.6	3.7	(389)
0	22.0	16.7	(525)	11.1	2.5	(537)	3.6	1.8	(255)	16.6	14.0	(460)	7.2	3.8	(290)
2	24.2	18.9	(394)	11.2	2.7	(402)	3.3	1.8	(198)	16.8	13.3	(344)	7.3	4.0	(201)
4	24.0	19.3	(315)	10.8	3.0	(319)	3.3	1.8	(139)	16.2	12.4	(275)	7.1	4.0	(164)
6	23.7	19.6	(233)	10.4	3.2	(239)	3.3	1.7	(100)	16.3	11.6	(218)	7.2	4.0	(119)
8	24.4	20.6	(114)	10.5	2.9	(115)	3.5	1.7	(50)	16.8	12.0	(107)	7.4	3.6	(49)

Correlations of Respondent's Occupational Status[b] With:

ge	Respondent's Education		Respondent's IQ		Father's Status		Father's Education	
	r	(N)	r	(N)	r	(N)	r	(N)
18	.29	(652)	.16	(258)	.16	(551)	.24	(376)
20	.35	(525)	.25	(249)	.19	(451)	.22	(283)
22	.57	(394)	.39	(194)	.27	(336)	.38	(196)
24	.58	(314)	.38	(138)	.34	(270)	.34	(161)
26	.60	(233)	.31	(97)	.26	(212)	.39	(115)
28	.52	(114)	.25	(50)	.17	(106)	.43	(49)

---

[a] Table includes only men for whom labor force status (i.e., employed, unemployed, or not in the labor force) is known.

[b] Occupational status is for current job if employed and is for last job if not currently employed.

[c] Stanine scores.

contrast with white men is that Table 10.2 does not show black men becoming more differentiated with age. Occupational status does not increase on the average after age 20 and educational levels are actually highest among blacks in their early twenties. These patterns reflect the large cohort differences in educational attainment and the small cohort differences in status attainment which were discussed in Chapter 6. Thus, this table provides little information about the differentiation that occurs among blacks with age. Previous chapters--particularly Chapter 8--indicated that such differentiation is much smaller than it is among whites. The differentiation that does occur because of maturation seems to have been rivaled in magnitude by cohort differences. This clearly was not the case with whites.

It is clear that analyses of blacks on variables with large cohort effects are quite risky. Analyses of occupational status may not be affected much, but anything involving educational levels should be carried out with great caution. The problem is not so serious with whites because there do not seem to be any noticable cohort differences in occupational status and only small cohort differences in educational level over the five-year period examined here.

Distribution According to Education, IQ, and Socioeconomic Background

The lower panels of Tables 10.1 and 10.2 address the question of how men are distributed to jobs according to several background characteristics. Correlations between the respondent's current or latest occupational status with respondent's education, IQ stanine, father's status, and father's education are presented. These correlations all increased with age among whites (Table 10.1), some more dramatically than others. Correlations of respondent's status with IQ and parents' socioeconomic status increased from less than .2 at age 18 to .4 or above at age 28. Correlations with years of education increased from about .2 to over .6 among whites. The correlations for the oldest group are comparable in magnitude to those cited at the beginning of this chapter for older men. In short, older white men are much more differentiated in attainment than are younger white men, and the links of their current occupational attainment to their educational level and to their parents' socioeconomic status have become much more apparent. The comparability of the correlations among the older groups to those among much older adults suggests that the sorting process may be largely complete by the late twenties. Individual men will continue to change jobs and advance or fall in status, but the overall process of population differentiation and distribution may have largely run its course. This conclusion is quite tentative, however, because I have not examined men aged 30 or above. It is consistent, however, with other evidence that job changing decreases sharply with age (Byrne, 1975; Chapters 7 and 8 in this volume).

The results for black men (Table 10.2) are not as clearcut as for whites, perhaps because of the large cohort differences just discussed. The major deviations are among the two oldest groups, though it should also be noted that these two groups of blacks are small--the latter including only 49 men. If we ignore these two older groups,the results are fairly similar across the races. Correlations of occupational status with background characteristics increase steadily with age, thus revealing how background and occupational outcome become clearer (or strengthened) with age among blacks as well as among whites.

The rise in correlations reflects two sources of sorting by background characteristics. First, late entrants to the labor force tend to be more advantaged than early entrants, the latter being lower and more homogeneous in education, IQ, and socioeconomic background than men in general. Second, among men who are already employed, the more advantaged ones are more likely than the less advantaged ones to move out of low-level jobs. Table 10.3 illustrates these two types of sorting among white men. There are too few blacks for a similar analysis. In Table 10.3, IQ is used as a measure of advantage in the labor market because IQ, unlike education, does not change appreciably with age. (Values were not imputed for missing data in this analysis.) The table shows the percentage of white men in each age-occupational group whose IQ scores are estimated to be among the top 40% of IQ scores (i.e., in the top four stanines) in the general population. At all ages, a high proportion of men not in the labor force had IQ scores in this upper range, a proportion most similar to that of the men in high-level jobs. Looking at the proportions for low- and moderate-level work, it is apparent that with age the higher IQ men tended to move out of such jobs because the proportion actually dropped. For example, the proportion of workers with IQs in the upper 40% range dropped steadily from 60% at age 18 to 22% at age 28 in moderate-level enterprising work.

Table 10.3 also reveals differences in IQ among the men in different fields of work at the same level. Investigative and social occupations have the highest proportion of high-IQ men. The other high-level work considered here--enterprising work recruits proportionately fewer such men. The IQ level of men in moderate-level realistic work also appears to be lower than that of men in other moderate-level work. The latter fields of work may more often serve as stepping stones to higher-level work for higher-IQ men. This possibility was also suggested earlier (Chapter 7) from patterns of recruitment and mobility.

Insert Table 10.3 About Here

Tables 10.1 and 10.2 showed the often-noted fact that occupational status is strongly linked to educational attainment and it is less strongly linked to IQ and family background. The following discriminant analyses expand the examination of distribution processes to include field as well as level of work, to include more background variables, and to look at these variables simultaneously. The analyses are performed only for whites because 80% of blacks are found in only one group--low-level realistic work.

Discriminant analyses were performed for each age group in order to find the major dimensions along which young men employed in different fields and levels of work differ. In particular, these analyses indicate which characteristics--respondent's education, father's occupational status, and so on--are most useful in distinguishing workers in one occupational group from those in another, and they thus provide evidence about what it is that determines how men are sorted, or sort themselves, into different jobs. The following results refer only to Model 1--the model using traditional status attainment predictors.

Before discussing those results, however, the overall usefulness of the discriminant analyses is examined: (a) just how different are workers across the occupational groups compared to differences within groups, (b) how many dimensions (functions) are needed to summarize most of the differences between the groups, and (c) how well does the whole set of predictors predict occupational group membership? Table 10.4 presents the relevant results. The upper panel shows what proportion of the total variance in

Table 10.3

Percentage of Men in Each Occupational Group Whose IQ Scores Fall Within the Top 40% of IQ Scores: Whites by Age

Age	R Lo		R Mod		C Mod		E Mod		E Hi		I Hi		S Hi		Unemployed		NILF[b]	
	%	(N)	%	(N)	%	(N)	%	(N)	%	(N)	%	(N)	%	(N)	%	(N)	%	(N)
18	43.4	(406)	49.2	(65)	65.8	(41)	60.3	(53)	a		a		a		38.1	(71)	73.3	(319)
20	41.8	(410)	36.5	(104)	71.4	(63)	48.7	(78)	60.0	(50)	67.7	(34)	a		57.7	(59)	80.3	(274)
22	33.6	(307)	40.0	(120)	55.6	(54)	41.8	(67)	54.6	(66)	81.2	(53)	83.0	(53)	60.9	(41)	67.0	(100)
24	29.0	(245)	25.0	(100)	42.9	(42)	36.1	(72)	61.3	(106)	78.0	(77)	72.7	(55)	a		70.9	(55)
26	24.8	(197)	31.6	(98)	40.0	(30)	38.8	(49)	57.6	(99)	84.0	(63)	62.8	(43)	a		65.0	(20)
28	24.0	(100)	33.4	(48)	a		21.7	(23)	56.5	(69)	66.7	(36)	72.0	(25)	a		a	

[a] Fewer than 20 cases.

[b] Not in the labor force.

each particular predictor is between groups. These proportions indicate that less than 7% of the variance in any of the characteristics is between groups for the younger men, but that most proportions increase in the mid 20's--somewhat for parental characteristics (to about 14%), more for IQ and high school curriculum (to about 23%) and most for years of education (to about 43%). Whereas the young men in the different occupational groups are not very distinguishable according to any of these criteria, the groups among the older men are more distinguishable--particularly in years of education. It should be remembered, however, that a much smaller proportion of the younger men than of the older men (e.g. 58% of the 18-year-olds versus 87% of the 28-year-olds) are included in the analyses, because only employed men are analyzed. In addition, the between-group variance is restricted in the youngest groups because those men are found primarily in only one of the seven occupational groups analyzed.

The lower panel of Table 10.4 shows the eigenvalues and the canonical correlations of the first three (of the possible six) discriminant functions. The first three functions are significant for most of the age groups, but the first function summarizes most of the inter-group differences, particularly for the three oldest groups of men. The eigenvalues and canonical correlations for the second and third functions are quite small even though they are generally significant. The last two columns in the lower panel of Table 10.4 indicate the ability of the eight predictors to predict group membership. Although the greatest percentage (70%) of cases correctly classified was in the youngest age group, most of these men are employed in only a single occupational group--low-level realistic work--and the kappa (.05) indicates that this percentage is what would be expected by chance. In contrast,.3 of the agreement possible above that expected by chance is found for the three oldest age groups.

Insert Table 10.4 About Here

Turning to the more detailed results, Table 10.5 provides the coefficients for the first discriminant function and the centroids for each occupational group along this dimension. The first function is the one linear combination of the variables which best differentiates the occupational groups. Beginning with age 20, the first function appears to tap primarily an academic achievement dimension, although as Table 10.4 shows, even the first function is not very useful until age 22. Looking at the upper panel of the table, years of education has the largest weights in this first function. Parental background variables have essentially zero coefficients and so make almost no independent contribution to the first (and most powerful) function separating the seven groups. Current enrollment in school and a history of some vocational training help to distinguish groups among the youngest men, but these two variables become relatively unimportant with age for defining the first dimension. The canonical correlation of scores on this first function with group membership--one measure of the ability of this dimension to distinguish among the groups--increases with age. This increase is concurrent with the increasing differentiation among men in years of education completed and the more even distribution of men across the seven occupational groups that occur with age.

Insert Table 10.5 About Here

The lower panel of Table 10.5 shows the group means or centroids on the first discriminant function. With the exception of only one occupational group in the two youngest age groups, the ordering of the seven

Table 10.4

Summary Statistics from the Discriminant Analyses of the Seven Major Occupational Groups using Model 1: Whites by Age

Age	Percentage of Total Variance Which is Between Groups							
	Father's Status	Father's Education	Mother's Education	IQ	Years Education	College Curriculum	Enrolled Now	Any Training
18	4	3	1	5	2	5	7	7
20	5	4	3	5	11	6	9	5
22	6	5	5	17	29	15	7	7
24	14	15	12	20	40	22	10	8
26	12	15	14	25	43	27	10	8
28	18	13	10	23	46	22	8	6

	Eigenvalues of first three functions			Canonical Correlations of Functions with Occup. Groups			Cases Correctly Classified	
	1st	2nd	3rd	1st	2nd	3rd	%	Kappa
18	.14*	.08*	.05*	.35	.28	.21	70	.05
20	.18*	.07*	.03	.39	.25	.17	50	.05
22	.52*	.08*	.04*	.59	.27	.21	51	.25
24	.88*	.09*	.05*	.68	.29	.22	51	.29
26	1.08*	.05*	.04*	.72	.23	.19	50	.29
28	1.11*	.07**	.03	.73	.26	.18	48	.29

* $p \leq .01$

Table 10.5

Standardized Coefficients and Centroids for the First Discriminant Function using Model 1: Whites by Age

Age	Standardized Coefficients of First Discriminant Function								
	Father's Status	Father's Education	Mother's Education	IQ	Years Education	College Curriculum	Enrolled Now	Any Training	(N)
18	.08	.30	-.24	.35	.14	.27	.34	.40	(859)
20	.23	-.07	.09	.19	.48	.21	.18	.23	(937)
22	.08	-.08	-.06	.31	.70	.16	.03	.18	(902)
24	.08	-.00	-.02	.22	.65	.21	.05	.17	(923)
26	-.03	.02	.08	.25	.58	.25	.07	.15	(783)
28	.12	.02	-.05	.18	.67	.16	.16	.11	(419)

	Centroids on First Discriminant Function						
	R Lo	R Mod	E Mod	C Mod	E Hi	I Hi	S Hi
18	-.18	.15	.49	.70	-.09	.88	2.06
20	-.25	-.14	.38	.72	.33	.95	1.07
22	-.45	-.16	-.01	.38	.44	1.22	1.35
24	-.60	-.32	-.07	.11	.67	1.18	1.27
26	-.65	-.30	-.19	.10	.65	1.30	1.30
28	-.65	-.38	-.38	.14	.54	1.25	1.33

occupational groups is exactly the same at all ages. As would be expected, the high-level occupational groups all score higher than the moderate-level groups, which in turn all score higher than the one low-level group. However, this function also discriminates among groups at the same level. The mean scores of the social and investigative groups are about the same on this achievement dimension but are considerably higher than the mean of the high-level enterprising group. In fact, the high-level enterprising group is closer on this dimension to the moderate-level groups. The moderate-level groups also vary along this dimension, though not to the same degree as the high-level groups. The moderate enterprising group scores higher than does the realistic group, and the conventional group scores higher than both of the former.

The second and third dimensions (statistically independent of each other and of the first dimension) were also somewhat useful in distinguishing the groups, as noted above. In contrast with the first function, the standardized discriminant coefficients for family background (not shown here) were sizeable in some age groups for both the second and third functions. However, the coefficients do not reveal a clear pattern. The second function was not the same across all age groups, nor was the third. Plots of the centroids of the occupational groups along the second and third dimensions (not shown here) showed consistent differentiation among groups at the same level, that is, among the three high-level groups and also among the three moderate-level groups. The most consistent pattern was a contrast between high-level social and high-level enterprising work, the former being associated more with high education and the latter more with high father's status. I stress again, though, that the first function was by far more useful and interpretable than the others.

The second and third dimensions separated the fields of work, rather than the status levels of work. In contrast, the first function appeared to separate the groups primarily by status and only secondarily by field of work. I interpret this observation as follows. First, the discriminatory variables were selected on the basis of previous research which had found them useful for predicting occupational _status_ (that is, in explaining distribution along a status hierarchy), so it is not surprising that the first and by far most powerful function was primarily a status dimension. Second, the first three functions nevertheless _did_ help to discriminate among different fields of work, although most of the sociological work to date would not have predicted that result. To some extent, the distribution of men to different fields of work is associated with educational experiences and (more tentatively) family socioeconomic status, even when their occupational status is held constant. And third, we would expect discriminant analyses to be more useful in distinguishing among the fields of work were we to include variables theoretically expected to influence distribution to fields of work, for example, aspirations for field of work or father's field of work. The following analyses test these speculations.

Comparing Different Models of Occupational Development

Models 2 through 5 successively add more variables to the basic model of what determines occupational group membership. Models 2, 3, and 5 add variables that should be related more to field than to level of work. The five models are compared using a smaller set of men than was used in the earlier detailed analysis of Model 1. The number of cases in these latter analyses is smaller because all men for whom father's occupation, job value, and occupational aspirations are not known are excluded. Model 1 looks essentially the same whether the smaller or the larger set of cases is used.

Table 10.6 summarizes comparisons among the five models. This table shows the percentage of cases classified into the correct occupational group using the discriminant functions derived for each model to predict group membership and the kappas for those predictions. Looking first at Models 1, 2, and 3, we see that for all age groups the percentages and the kappas are the same for the three models indicating that the latter two models are no better than Model 1 for predicting occupational group membership. Both the slight increases and decreases in percentage of cases correctly classified are within twice the standard error of kappa. This means that knowing father's field of work and knowing whether men prefer well-paying jobs to ones they "like" does not help us better predict what type of work they are in--once we already know their socioeconomic background, IQ, education, and training. Stated another way, the field-related predictors in Models 2 and 3 added nothing to the level-related predictors in accounting for status-field group of employment. This is not to say that other field-related variables would not be useful. For example, the variable "job value" may be only a poor indicator of field-related values and interests which could conceivably affect later employment.

Insert Table 10.6 About Here

Models 4 and 5 add aspirations in the previous year, the former model adding status aspirations and the latter field aspirations. The percentages and kappas in Table 10.6 show that only model 5 clearly increases the proportion of cases correctly classified, and the increases occur only among the older men. For example, among 26-year-olds the kappas for Models 3, 4, and 5 are respectively .31, .34, and .47. For 28-year-olds, they are .35,

Table 10.6

Percentage of Cases Correctly Classified and Kappas for Five Models Predicting Prediciting Occupational Group Membership: Whites by Age

Model[a]	Age: 18			20			22			24			26			28		
	%	K	(SE)[b]	%	K	(SE)	%	K	(SE)	%	K	(SE)	%	K	(SE)	%	K	(SE)
1	72	.02	(.01)	55	.07	(.02)	52	.30	(.02)	50	.30	(.02)	46	.28	(.02)	49	.33	(.03)
2	72	.03	(.01)	56	.11	(.02)	52	.32	(.02)	51	.32	(.02)	47	.29	(.02)	51	.35	(.03)
3	72	.03	(.01)	56	.12	(.02)	53	.32	(.02)	51	.32	(.02)	48	.31	(.02)	51	.35	(.03)
4	73	.04	(.01)	56	.15	(.02)	52	.30	(.02)	52	.34	(.02)	50	.34	(.02)	52	.39	(.03)
5	72	.10	(.02)	55	.17	(.02)	52	.34	(.02)	55	.41	(.02)	58	.47	(.02)	64	.55	(.03)
(N)		(615)			(679)			(653)			(710)			(598)			(356)	

---

[a] The variables included in each model are described in the text and are shown in Table 10.8. Each of the five models results in six discriminant functions.

[b] SE= standard error of Kappa.

.39, and .55. This means that if we know what level of work a man wants, we are better able to predict what work he will be doing the next year--although the increase in predictability is not great. Knowing field aspirations produces a greater increase in predictability than does knowing status aspirations.

The ability of Model 5--and possibly Model 4--to better account for occupational group membership must be seen in the light of results in the previous two chapters. We have seen that aspirations for status of work are quite stable on the average and that the gap between status of job and of aspiration closes with age as job status increases. If status aspirations are based largely on variables in Model 1 such as IQ and family background and highly associated with educational attainment, then we would not expect status aspirations to add much to our predictions once we know these other determinants of jobs and aspirations. Status aspirations would be primarily mediators of those background variables on future status. Status aspirations possibly increase predictions slightly among older men (indicating some independent "effect"), but this could be explained in several ways: men have a good idea of what they will be doing the next year and their aspirations reflect this reality, status aspirations reflect the effects of other background variables not measured, and the aspirations actually affect what work will be obtained (e.g. by leading the man to search for that work). There is no way here to choose among these explanations here.

We have seen in the previous chapter that men come to want the field of work they are employed in. This may account for the fact that earlier field aspirations come to predict later jobs quite well among older men. Hence, the increase in predictability of group membership once we know men's field aspirations may reflect the men's knowledge of where they are likely to be working the next year and their acceptance of it. Because men's field of work is quite stable from one year to the next in the late twenties, men are very likely to be where they "want" to be the next year. Thus, it is not clear that field aspirations reflect anything more than fairly accurate predictions of where they will be in the following year. Such "knowledge". however, would function as a stabilizer in careers, keeping men from even attempting to move in different directions. As has been discussed in earlier chapters, aspirations may reflect social "reality", but by accepting that reality men's aspirations may become inhibitors of future change.

One question raised earlier was whether more than one dimension of background characteristics is useful in predicting occupational group membership. There is clearly a status dimension--including primarily IQ and education--that accounts for level(and to some extent field) of work entered. But are there also other dimensions which might account primarily for why men enter one field rather than another? Table 10.7 provides evidence on this issue. This table shows the eigenvalues and the percent of discriminable between-group variance accounted for by the first three discriminant functions in each of the five models. As noted, earlier, Model 1 produces only one important function. Models 2 and 3 exhibit the same pattern as does Model 1; eignvalues and percentages of variance are almost identical in these three models for the first three functions. Model 4--which adds status aspirations--increases the power of the first function (among the oldest men) but does not affect the usefulness of the second and third functions. Adding aspirations for field of work (Model 5) changes the pattern. The four dummy variables added in Model 5 also increase the power of the first function--particularly among the oldest men. But these variables also increase the power of the second and third functions among the older men. Among the 28-year-olds, the second function has an eigenvalue of 1.15, accounting for 25% of the predictable between-group variance; the value is .60 for the third function, accounting for 13% of the predictable between-group variance.

The remaining tables show the composition of the functions and along what dimensions they distinguish men in the different fields and levels of work. The first function is the most important, so it will be discussed in detail first. Table 10.8 shows the standardized discriminant coefficients for the first function for each of the five models. It reveals several interesting points. Table 10.6 showed that father's field of work and job value did not add to the predictability of occupational group, but it is possible that they nevertheless mediate (or in the case of father's work) are mediated by the other variables. For example, father's field of work might affect one's education which in turn affects kind of work obtained. However, if we look at the coefficients for Models 1, 2, and 3 in Table 10.8, we see that the introduction of father's field and job value in the models does not alter the coefficients of the other variables at all. (Those coefficients would be changed with the introduction of the new variables if they shared variance in common.) Turning to Model 4, we find (not surprisingly) that status aspirations share variance in common with other predictors; the most powerful variables in the first function--IQ, education, curriculum, enrollment, and training--all decrease with the addition of status aspirations. The coefficients for Model 5 indicate that aspirations for field of work further decrease the coefficients for these variables indicating that field aspirations also share variance in common with the more clearly status-related predictors. The coefficients for field aspirations indicate that it is aspirations for social jobs (and at some ages investigative jobs as well) rather than other fields of work that are highest on this status dimension.

Insert Tables 10.7 and 10.8 About Here

Table 10.9 shows the standardized discriminant coefficients for the second and third functions, together with the centroids of the seven occupational groups along those dimensions. The results are shown only for men 22 and older because (as Table 10.7 shows) the second and third functions are not useful among the younger men. As the centroids show quite clearly, these two functions serve primarily to separate the three high-level groups of work: the second function contrasts I-high with S-high; the third function contrasts E-high with I-high. The two functions are also somewhat useful in distinguishing among the moderate-level groups. The second function separates C-moderate from R-moderate; the third function separates E-moderate from R-moderate. The coefficients show that it is primarily the field aspirations that contribute to these functions--which is not surprising because these functions did not become useful until these variables were added to the model. As suggested above, the interpretation of these two functions is not clear because the field aspirations may reflect little more than accurate predictions of where (the fields in which) the men are working in the following year.

Insert Table 10.9 About Here

Summary

This chapter charts further the rate at which occupational differentiation proceeds among males as they enter the labor force, and the dimensions

Table 10.7

The Usefulness of the First Three Discriminant Functions from Five Models of Occupational Group Membership: Eigenvalues and Percent of Discriminable Variance Accounted for Among Whites of Different Ages

Discriminant Analysis Model Age:	18		20		22		24		26		28	
	EV[a]	%	EV	%	EV	%	EV	%	EV	%	EV	%
First Discriminant Function[c]												
1	.14	50	.20	61	.60	73	.89	83	1.07	88	1.19	86
2	.14	50	.21	56	.60	72	.90	79	1.09	82	1.20	82
3	.14	46	.21	56	.60	72	.90	78	1.09	82	1.20	81
4	.15	47	.27	59	.62	71	1.01	78	1.24	82	1.54	80
5	.17	45	.28	47	.71	52	1.10	54	1.40	53	2.37	52
Second Discriminant Function[d]												
1	.09	32	.07	21	.12	15	.10	9	.06	5	.09	6
2	.09	32	.07	19	.12	15	.10	9	.11	9	.11	7
3	.10	34	.07	19	.12	15	.10	9	.11	8	.12	8
4	.10	33	.08	17	.12	14	.11	9	.11	8	.17	9
5	.11	28	.11	18	.29	21	.42	21	.52	20	1.15	25
Third Discriminant Function[e]												
1	.03	12	.04	11	.05	6	.06	5	.05	4	.05	4
2	.04	12	.04	11	.05	6	.08	7	.07	5	.06	4
3	.04	12	.04	11	.05	6	.08	7	.07	6	.07	5
4	.04	12	.05	10	.05	6	.08	6	.08	5	.08	4
5	.06	15	.08	14	.21	15	.27	14	.45	17	.60	13

[a] Eigenvalue of the function in question.

[b] Percent of discriminable between-group variance accounted by the function in question.

[c] $P \leq .01$ for all models and ages.

[d] $P \leq .01$ for all models and ages.

[e] $P \leq .01$ except for age 18 (Models, 1,2,3,4,5), age 20 (Models 1,2,3,4), and age 28 (Models 1,2,3,4).

Table 10.8

Standardized Discriminant Coefficients for the First Function of Five Different Models of Occupational Group Membership: Whites by Age

Predictor	Age 18					Age 20					Age 22				
Model:	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Father's status	.00	-.02	-.02	-.05	-.07	.20	-.07	-.07	-.06	-.06	.09	.18	.19	.18	.09
Father's educ.	.33	.31	.31	.30	.35	-.01	-.05	-.05	-.08	-.09	-.07	-.07	-.07	-.08	-.04
Mother's educ.	-.31	-.34	-.34	-.34	-.33	.13	.12	.12	.10	.11	-.16	-.16	-.16	-.17	-.17
IQ	.40	.38	.38	.34	.31	.23	.23	.24	.16	.19	.35	.34	.34	.33	.33
Years educ.	.18	.19	.19	.11	.11	.48	.47	.48	.31	.31	.77	.77	.77	.71	.61
H S curriculum	.20	.21	.21	.14	.14	.15	.14	.14	.03	.05	.14	.14	.14	.13	.07
Enrolled now	.50	.52	.52	.50	.42	.25	.24	.24	.08	.02	-.01	-.01	-.01	-.04	-.08
Any training	.24	.19	.19	.17	.20	.13	.13	.13	.16	.15	.22	.22	.22	.20	.13
Father's field: I		.15	.15	.15	.12		.31	.31	.29	.27		-.05	-.05	-.04	-.02
" " S		-.03	-.03	-.04	.00		.03	.03	.03	.02		.02	.02	.01	.03
" " E		.01	.01	.01	.00		.21	.21	.17	.16		-.12	-.12	-.13	-.07
" " C		-.02	-.02	-.03	-.01		.24	.24	.20	.20		-.03	-.03	-.03	-.02
Job value			.00	.00	-.02			.03	.01	.01			.03	.03	.00
Aspiration: Status				.30	.38				.56	.42				.19	.10
" I					-.15					.08					.04
" S					-.18					.15					.46
" E					-.17					.23					.10
" C					.30					.11					.00

Predictor	Age 24					Age 26					Age 28				
Model:	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Father's status	.04	-.02	-.01	-.05	-.03	-.09	-.05	-.06	-.05	.01	.11	.15	.15	.11	.08
Father's educ.	.03	.02	.03	.04	.02	-.02	-.03	-.03	-.03	-.06	-.05	-.04	-.04	-.10	-.19
Mother's educ.	-.05	-.05	-.06	-.08	-.07	.15	.15	.15	.15	.15	-.04	-.04	-.04	.00	.02
IQ	.25	.26	.26	.21	.22	.33	.34	.34	.28	.23	.22	.22	.22	.17	.02
Years educ.	.73	.73	.73	.59	.56	.64	.63	.63	.51	.44	.73	.73	.73	.53	.40
H S curriculum	.20	.20	.20	.17	.16	.28	.27	.27	.21	.20	.22	.22	.22	.16	.08
Enrolled now	.07	.06	.07	.01	.00	.04	.03	.03	.00	.01	.24	.24	.24	.15	.01
Any training	.23	.23	.23	.20	.18	.23	.23	.23	.19	.16	.18	.19	.19	.17	.16
Father's field: I		.07	.07	.08	.06		.09	.09	.07	.04		-.08	-.08	-.06	-.05
" " S		.02	.02	.01	.00		-.08	-.08	-.09	-.07		-.06	-.06	-.02	-.01
" " E		.05	.06	.07	.05		-.06	-.05	-.09	-.14		-.02	-.02	-.03	-.04
" " C		.02	.02	.01	.00		-.04	-.04	-.05	-.05		-.02	-.02	-.01	.01
Job value			-.04	-.03	-.02			-.04	-.06	-.05			.00	.02	-.04
Aspirations: status				.37	.10				.39	.18				.52	.11
" I					.33					.33					.17
" S					.33					.40					.84
" E					.28					.06					.22
" C					.15					.12					.02

Table 10.9

Centroids and Discriminant Coefficients for the Second and Third Functions of Model 5: Whites by Age

	Second Function				Third Function			
Age:	22	24	26	28	22	24	26	28
Group	Centroids							
R lo	-.23	-.20	-.29	-.74	-.08	-.05	-.17	-.42
R mod	-.03	-.08	-.16	-.23	-.37	-.40	-.39	-.21
C mod	.83	.77	.02	.38	-.02	.13	-.22	.42
E mod	.06	.33	.52	-.09	1.02	.60	.65	.80
E hi	.49	.74	.79	.83	.84	.65	.97	1.22
I hi	1.19	.48	.83	2.45	-.71	-1.18	-1.37	-1.35
S hi	-1.03	-1.81	-1.98	-1.63	-.07	.35	.58	-.13
Predictor	Standardized Discriminant Coefficients							
Father's status	.49	.06	.08	.20	.27	-.35	-.28	.03
Father's educ.	-.01	.19	.12	.04	-.08	-.20	.08	.07
Mother's educ.	.01	-.05	-.03	-.08	.12	.15	.08	.16
IQ	-.01	.01	.16	.20	-.03	-.02	-.12	-.07
Years educ.	.01	-.13	.01	.18	.10	.04	.16	.09
H S curriculum	.26	.01	-.03	.10	.03	.16	.11	-.17
Enrolled now	.22	-.07	.05	.28	-.21	-.29	-.11	-.15
Any training	.42	-.02	.01	.09	-.30	-.04	.02	-.03
Father's field: I	-.15	.27	.20	.03	-.11	.12	-.22	-.01
" " S	-.20	-.04	-.11	.05	-.13	.08	-.03	.07
" " E	-.25	.11	.06	-.07	-.08	.30	.22	-.03
" " C	-.04	.06	-.02	-.06	.06	.19	.05	.10
Job value	.14	.03	-.02	.05	.07	.11	-.01	.07
Aspiration: Status	-.32	-.09	.15	.19	-.33	-.22	-.24	.18
" I	.58	.29	.07	.51	-.04	-.32	-.35	-.40
" S	-.38	-.53	-.73	-.50	.30	.44	.38	.04
" E	.40	.61	.37	.17	1.02	.71	.83	.78
" C	.26	.30	-.01	.06	.15	.19	.22	.33

along which occupational distribution proceeds. The major limitations of the analyses were discussed earlier: only civilian males are included; age, cohort, and period effects are not disentangled; and values had to be imputed for missing data. Nevertheless, the results provide a glimpse of the process by which people become sorted to jobs during the critical first decade after high school. They essentially provide another series of snapshots at regular intervals of the results of the ongoing process distributing men to jobs. More detailed examinations should be made, but these preliminary snapshots do provide an outline of the process which is consistent with the major conclusions from previous research on intergenerational mobility but which also suggests the need to examine the systematic variations in how people attain jobs in different fields of work. The results of the present chapter are summarized below. Selected results from Chapter 7 on patterns of employment are included where relevant to provide a more comprehensive picture of differentiation and distribution processes.

(1) Rate of labor force participation is high by the early twenties, and by age 22 working is the major activity of almost 80% of all men in the sample. (Given different economic conditions, we would expect a different pattern).

(2) Differentiation according to educational level, the major criterion by which men are sorted to jobs, is largely complete by age 22. Differences in other antecedents of occupational attainment such as IQ and father's status do not increase, which is as expected.

(3) Differentiation according to occupational status occurs primarily by age 24 but continues at a slower rate through the late 20's.

(4) The major outline of the distribution process becomes clear

around age 22, at which age 85% of men are working and most, presumably, have completed their education. The similarity in the discriminant functions for ages 22 through 28 suggests that no major alterations occur after age 22 in how the men are distributed to jobs--at least according to the variables examined here.

(5) The overall distribution of men to different fields and broad status levels of work has largely stabilized by the mid twenties. The major net change in the late twenties is the continuing movement of men into high-level enterprising work, which is consequently associated with a continuing rise in the mean and variation of occupational status among all men.

(6) Academic achievement is the major dimension (among those examined here) by which white men become sorted into different occupational groups. This finding is consistent with previous status attainment work which shows via path models that education is a more important determinant of occupational status than are IQ and family background (Sewell and Hauser, 1975), but it differs significantly from the previous research by suggesting that some fields of high-level work are obtained with considerably less education on the average than are others.

(7) Family socioeconomic background is also associated with employment in different occupational groups. When considered simultaneously with important variables such as educational attainment and IQ, however, it makes little independent contribution to occupational field or level.

(8) Father's field of work and respondent's job values add nothing to the ability of status-related variables in predicting occupational group membership. However, better measures of job values and interests should be included in future research before concluding that field-related predictors are not useful.

Chapter 11

HOW DO ENVIRONMENTS AFFECT THE EVOLUTION OF EDUCATIONAL AND STATUS ASPIRATIONS?

People's educational and occupational aspirations can be seen as products of their social environments. Being products of those environments, aspirations can be used as barometers of the different environments that blacks and whites experience and as barometers of the changes in those climates over time. This chapter examines shifts in aspirations over time in order to draw conclusions about how environments influence career development. The focus is on aspirations for level--educational level and occupational status level. Occupational level is emphasized because status aspirations may be more important to people than are field aspirations. Level of education attained is emphasized because it is the strongest correlate of status level attained.

Chapter 9 suggested that aspirations for field of work change as men adjust to the realities of the job market and as they pursue their preferred status level. The occupational status the men desire also changes somewhat with age, but major changes probably do not occur on the average unless the environment changes radically. Major cohort differences in status aspirations among blacks suggest that major environmental changes have been occuring for blacks. The small decreases in status for all men with age suggest that the transition to new environments during development causes a slight shift in average status aspirations. The two shifts in aspiration as the result of exposure to new environments might be labelled the "response to changing times shift" and the "response to reality." The former reflects a cohort effect, the latter a developmental one. The previous chapter speculated that the response to reality may largely occur at very early ages for status aspirations, though later for field aspirations. Nevertheless, such shifts as do occur among the NLS men in status aspirations will be examined more closely in this chapter. Much previous research as well as earlier results in this volume show that IQ, SES and race are important determinants of aspirations and attainments. Several previous chapters also raised the possibility that changes in aspirations and attainments over time might be slightly confounded with differential attrition according to SES and IQ. Therefore, men are examined controlling for these variables.

Aspirations as Barometers of the Environment

Scientists, politicians, and laymen all take aspirations seriously, though they may disagree about what they mean. During the 1960's many people began to recognize the potentially explosive problem created because some social groups may be effectively blocked from fulfilling the American dream. A decade earlier a frequent question in sociological research (e.g., Rodman, 1963; Kahl, 1953; Empey, 1956; Rosen, 1959) had been to what extent to do different social groups share common values, to what extent are they all able to meet common goals, and what negative consequences such as anomie or delinquency might be expected from either the differences in values or a gap between goals and attainments? In the last decade, we have seen an increasing attention among sociologists to the relation of aspirations and expectations to educational and occupational attainment. Take for example, the work of Sewell and Shah (1968a, 1968b) and of Kerckhoff (1974; Kerckhoff and Campbell, 1977) which examines the role of peers, teachers, and parents on educational plans.

But what do aspirations really reflect? Like any attitude item, we are not really sure what they mean and arguments about whether or not they reflect what people would really do given a chance, whether they are purely fanciful, and so on, illustrate this problem. These arguments and confusions arise because aspirations have at least two distinct components, both of which may vary systematically across individuals and by age. These two components are the desirability of different outcomes and an assessment of the probability that each of those outcomes can be obtained with some reasonable effort. Take occupations, for example. We can examine people's aspirations as if they have made two assessments: (1) how much they would like each of the occupations, ranking them according to more and less desirable or satisfying and (2) their assessment of the probability that each of them is within reach. The resulting "choice" of occupations could then be seen as some compromise between desirability and probability of occurence. Thus, when we use aspirations as a barometer of social conditions, we are measuring to some extent the effects of environments on both what people would like to do and what they think they think they actually can do. Any question which focuses a person's attention on the probability of actually getting preferred choices will result in choices that look more "realistic"--hence the commonly found differences when individuals are questioned about their expectations and plans rather than about their aspirations.

Younger people hold more unrealistic aspirations than do older people; that is, their aspirations are based relatively more on the desirability and less on the probability of attaining the occupation than are those of older people. But as youngsters age, they begin to face or perceive more obstacles, they are better able to assess their opportunities, and therefore, their aspirations become more "realistic ." Thus, as youngsters age, their aspirations become increasingly sensitive barometers of the opportunities they perceive for themselves. If we further assume that the desirability of occupations is fairly constant after the elementary school years (and there *is* striking agreement in the ranking of occupations by all social groups which have ever been studied), it then seems reasonable to assume that if aspirations change--either up or down--over time, these changes reflect some alteration in people's assessments of their opportunities.

It is clear, however, that whatever we are measuring with status aspirations and no matter how unrealistic we think they may be sometimes, we are measuring something that is intimately related to what people do eventually obtain (cf. Kerckhoff, 1974; Sewell and Shah, 1968a). In short, aspirations say something about people's perceptions of themselves or of their environments that forecasts their fate quite well.

Hundreds of articles have been written on the development of aspirations and many have focussed on differences among age, race, social class, and ability groups. But previous research has not very often examined *changes* in aspirations, either developmental or cohort changes (see Grasso, 1977, for an exception). Previous chapters in this volume illustrated some developmental and cohort changes in level aspirations. This chapter examines the following additional questions.

(1) How much change in status and educational aspirations is there over a five-year period for two cohorts of men?

(2) Are the changes associated with educational and occupational experiences

(i.e. changes in environments associated with development)?

(3) Are the changes related to social background?

(4) Are the changes different for blacks than for whites? Do the races develop differently and are there cohort differences which indicate changing environments for the races?

Method

Data

Each of the variables in the analyses is described below. They have been described earlier, but a few are used a little differently here.

Aspirations. Aspirations were obtained by the following two questions. How much education would you like to get? What kind of work would you like to be doing when you are 30 years old? Educational aspirations are expressed as years of education and occupational aspirations in terms of Duncan SEI scores (Duncan, 1961).

Attainment. Educational attainment is measured as the number of years completed, and occupational attainment as the Duncan SEI score of the last job held. Thus, occupational attainment does not necessarily refer to the current year if the man was either unemployed or out of the labor force.

SES background. SES background was measured by father's occupational status when the respondent was 14 years old. Men were than classified into three groups according to their father's status: very low (Duncan SEI scores of 14 or below), low (15-29), and moderate/high (30 and above). These divisions were made on the basis of sample size. Previous analyses have used the status categories of low, moderate, and high (with status ranges, respectively, of 0-29, 30-59, and 60 plus). This division was not useful for detailed racial comparisons here because almost all black men come from low SES backgrounds according to this definition. Therefore, the low category was subdivided into the very-low and low categories and the moderate and high categories were combined into one category in the following analyses. The very-low SES fathers include primarily laborers and some operatives and service workers; the low SES fathers include most operatives and perhaps half of the craftsmen; the moderate/high SES fathers include the rest of the craftsmen and almost all the sales and clerical workers, managers, and professionals.

Ability. Ability test scores from high school were available for many of the men. The scores were transformed into stanines, and for the analyses reported here, men were further grouped into three broad levels of ability. Once again, the groups were created with sample sizes in mind so the high ability group actually corresponds roughly to IQ levels of 100 and above and therefore includes all men "above average."

Age cohort. Two age groups are examined separately in all the analyses: men aged 15-18 in 1966 and men 19-24 in 1966. In 1971 these two groups of men were aged 20-23 and 24-29, respectively. The youngest age group includes primarily men of high school age in 1966, and the latter group includes primarily men of post-high school age in 1966. It is important to keep in mind that these men have been exposed to different events and have experienced the same events at different stages in their lives because they were born in different years. The older group was born in the years 1942 to 1948, they were age 18 (an age when many were leaving high school) in the years 1960 to 1965, and in 1980 they are now aged 33 to 38. The younger men were born between 1949 and 1951, were age 18 in the years 1966 to 1969, and in 1980 are aged 29 to 32. In summary, the oldest group could be characterized as men born during the second world war, who were probably leaving high school during the early years of the civil rights movement, and who are in their mid-thirties in 1980. The younger men are baby boom babies who experienced the later years of the civil rights movement while still in school, and who are leaving their late twenties in 1980.

When comparing results of this study with those of others, it is important to remember that these men were born later than men in most other widely used national surveys of young men. For example, the youngest men included in the first Occupation Changes in a Generation survey (Blau and Duncan, 1967) were 25 to 34 in 1962 and were born before 1937, five years before the oldest men examined in this study. The second OCG survey (Featherman and Hauser, 1976) includes primarily men who were born earlier than those included here, though there is some overlap. The men studied in the National Longitudinal Survey of 1972 high school seniors (Thomas, Alexander, and Eckland, 1979), on the other hand, are generally younger than those included here.

Analyses

All analyses presented here were performed separately for blacks and whites and for the two age cohorts. In several analyses the men were also classified according to three levels of SES background and three levels of ability. Aspirations and attainments in 1971 as well as 1966 are examined, thereby providing evidence about changes occurring over a five year period in early career.

Two limitations should be noted. First, the sample sizes vary according to the analysis considered because more data were missing for occupational status, ability, and SES background than for educational aspirations and attainments. Therefore, the different analyses do not deal with exactly the same groups of men. Second, the number of blacks in some of the analyses is quite small.

Results

The first table provides some indication of the amount of change in both educational aspirations and attainment that occurred between 1966 and 1971 for men in the sample. Table 11.1 shows the percentage of men in the different race-age groups who aspired to and who had actually obtained different educational levels--12 years of education, 14 years and so on--in the two years. The table shows several things which were illustrated in earlier chapters: younger cohorts of men have higher aspirations than do older ones and actual attainments increase over the five year period. The first finding is to be expected because of the rising secular trends in the level of education which were discussed earlier and the latter because the men are still young and pursuing their education. Other findings were not so predictable.

Insert Table 11.1 About Here

First, all groups of men raised their aspirations over the five years. This too may reflect the secular trends in educational levels, but it could also partly reflect a developmental process whereby the more education a person gets, the higher he sets his goals. It could also reflect an upsurge in interest in education coinciding with the expansion of higher education in the 1960's.

The more interesting comparisons involve race, particularly the older black men. The percentage of older black men aspiring in 1966 to 11 or fewer years of education is overwhelming--over 43% said they wanted this little education. In the other groups, at most only 16% said they want this low level of schooling, and in 1971 the younger blacks have already achieved more than the older blacks said they even wanted in 1966. By 1971,

Table 11.1

Percentages of Men Aspiring to Different Levels of Education and of Men Actually Attaining Different Levels in 1966 and 1971: Two Cohorts of Men by Race

Race	Age in 1966	Years of education	% Aspiring to each educational level		% Attaining each educational level	
			1966	1971	1966	1971
Whites	15-18	0-11	7.3	5.2	73.1	14.6
		12	25.9	27.0	21.2	37.4
		13[a]	--	--	5.4	12.1
		14	9.4	13.6	0.2	10.7
		15[a]	--	--	--	10.5
		16	36.9	27.0	--	10.9
		17+	20.7	27.0	--	3.6
		(N)	(1244)		(1243)	
	19-24	0-11	16.4	9.5	22.5	20.9
		12	32.1	29.6	38.4	33.9
		13	--	--	11.3	7.3
		14	2.7	10.0	8.8	6.1
		15	--	--	7.2	5.1
		16	22.1	25.0	7.4	14.3
		17+	27.0	26.1	4.3	12.5
		(N)	(1304)		(1303)	
Blacks	15-18	0-11	15.7	12.5	86.1	37.5
		12	37.7	31.7	12.4	42.2
		13	--	--	1.1	5.8
		14	8.8	11.7	0.4	7.3
		15	--	--	--	4.7
		16	30.2	29.3	--	2.4
		17+	7.7	14.8	--	0.2
		(N)	(467)		(467)	
	19-24	0-11	43.4	17.7	53.5	52.4
		12	32.3	43.8	32.4	29.6
		13	--	--	3.9	4.2
		14	1.1	10.1	5.4	3.1
		15	--	--	2.3	1.7
		16	12.9	15.4	1.7	6.5
		17+	10.4	12.9	0.8	2.6
		(N)	(356)		(355)	

---

[a] When educational aspirations were coded, 13 and 15 years were not used as coding categories.

however, these older black men have changed their aspirations considerably and look much more like the younger blacks in their aspirations. However, their actual attainments have hardly changed at all. More than half still have fewer than 12 years of education.

Table 11.1 reflects the secular trends in rising educational levels and the rising aspirations may partly reflect this. The system of higher education expanded greatly during the 1960's and no doubt most people--regardless of race--saw both more opportunities for education and also actually obtained it. One other historical effect, one which effects primarily the blacks, however, also is suggested. Those blacks who were in school throughout most of the 1960's civil rights era--the younger group--may have been more strongly affected or else affected at an earlier age by the opening up of new opportunities for blacks (or at least by the perception of them) than were the older blacks who may have already been locked into a pattern of low attainment. In short, the pattern of aspirations and attainments among the blacks over the five year periods seems to suggest a change in the larger social environment which had an enormous effect on black perceptions and pursuit of opportunity--although not all groups were able to benefit from it.

Particular educational experiences

What about the effects of more particular settings that I suggested as potentially important sites of influence? The strategy of this analysis was to think of particular transition points from age 15 to 29 that might provide either positive or negative reinforcement of aspirations. I was interested in particular in racial differences that might occur at these transition points. For example, if a student is not promoted in school or if he drops out, does his aspiration fall and does it fall more if he is black? Do blacks become increasingly discouraged (or less encouraged) about their opportunities compared to whites as they enter and proceed through college? Also, when blacks change their aspirations, do they adjust them in ways (e.g., towards different sorts of occupations) different than do whites? The object was to discern when and where blacks might need reinforcement of their aspirations or the provision of more opportunity in order to maintain their promotion through the systems of education and work. The data used here can provide no direct evidence about what it is about those settings that is important, only that they might be especially important for blacks.

Mean levels of educational and occupational status aspirations were calculated separately for men who advanced by one year of education over a one-year period and for men who reported the same number of years of education completed in the two consecutive surveys. Means were calculated separately for each of the grade levels in question. For example, all men advancing from 10 to 11 years were examined separately, as were those who reported 10 years of education in both survey years. The expectation was that men who reported the same educational level in two years probably terminated or at least interrupted their educational progress in the preceding year. They were expected to lower their educational and occupational aspirations on the average. In contrast, men who advanced in education--especially those advancing into and through college--were expected to maintain or raise their aspirations. All sets of men were assumed to perceive their recent educational progress (or lack of it) as new information about their opportunities for future development. On the basis of this new information, they were expected to change their aspirations accordingly.

I will briefly mention but not present the results of these analyses.

If individuals lower their aspirations after discontinuing their education, or if they raise them when exposed to new opportunities through advancement, or if there are racial differences in the changes, my tables did not reveal them. Instead, the results reflected great stability over a one-year period for all the educational transitions (or non-transitions) examined. No particular group seemed to lower or raise its aspirations for education over the one-year period. Aspirations for jobs did seem to decrease somewhat but they did so in the same manner for all groups. Thus, while not ruling out the importance of these transition points, the results suggested looking elsewhere for more important influences on educational and occupational aspirations. In particular, they suggested looking to social background.

Social background

Tables 11.2 and 11.3 provide information about who holds the highest aspirations and who changes their aspirations most. Table 11.2 shows trends over the five years in educational aspirations and attainment for men of different ability levels. Table 11.3 shows comparable results for occupational status. Results were also obtained for men of different SES levels within the different ability groupings and are shown in Tables 11.4 through 11.7. Although attainments and aspirations in the different SES groups differ, they show the same trends by race as do Tables 11.2 and 11.3 so only the latter two tables will be discussed.

Insert Tables 11.2 to 11.7 About Here

Mean years of education and mean occupational status are shown for the different groups of men. The tables replicate findings from previous studies and Chapter 6 of this volume. First, aspirations among blacks are higher than among comparable whites. Not all studies find higher aspirations for blacks, but most do (L. Gottfredson, 1978c; Cosby, 1971; Kuvlesky, Wright,

Table 11.2

Mean Years of Education Aspired to and Actually Obtained in 1966 and 1971 by Two Cohorts of Men: by Race and Ability Level

Race	Ability	Age in 1966	Years Desired 1966	Years Desired 1971	Years Attained 1966	Years Attained 1971	(N)
Whites	Low	15-18	12.9	13.2	10.2	11.6	(107)
		19-24	12.2	12.7	11.4	11.6	(124)
	Mod	15-18	14.3	14.3	10.8	12.6	(357)
		19-24	13.9	14.1	12.4	12.9	(376)
	High	15-18	15.8	15.8	10.9	14.0	(510)
		19-24	15.8	15.8	13.7	14.8	(452)
	Total	15-18	14.9	15.0	10.8	13.3	(974)
		19-24	14.5	14.7	12.9	13.6	(952)
Blacks	Low	15-18	13.5	14.0	10.3	11.8	(103)
		19-24	12.2	13.4	11.4	11.5	(76)
	Mod	15-18	14.5	15.3	10.4	12.6	(77)
		19-24	13.8	14.5	12.3	12.9	(43)
	High	15-18	16.3	16.4	11.1	13.8	(20)
		19-24	16.2	15.9	13.6	14.4	(17)
	Total	15-18	14.1	14.7	10.4	12.3	(200)
		19-24	13.2	13.4	12.0	12.3	(136)

Table 11.3

Mean Occupational Status Aspired to and Actually Obtained in 1966 and 1971 by Two Cohorts of Men: By Race and Ability Level

Race	Ability	Age in 1966	Status Desired 1966	Status Desired 1971	Status Obtained 1966	Status Obtained 1971	(N)
Whites	Low	15-18	39.6	35.7	17.0	22.1	(70)
		19-24	39.7	35.5	23.5	30.4	(92)
	Mod	15-18	49.9	47.6	19.1	32.3	(237)
		19-24	51.0	47.2	32.8	41.0	(317)
	High	15-18	63.4	60.2	22.7	40.1	(311)
		19-24	64.6	61.3	41.6	58.9	(369)
	Total	15-18	55.5	52.6	20.7	35.0	(618)
		19-24	56.1	52.5	35.8	48.2	(778)
Blacks	Low	15-18	45.6	41.0	14.5	20.7	(65)
		19-24	40.0	40.2	19.7	26.9	(49)
	Mod	15-18	59.4	59.6	15.9	30.0	(45)
		19-24	56.7	57.0	28.7	34.3	(35)
	High	15-18	72.4	60.5	31.9	52.3	(11)
		19-24	67.7	60.6	30.9	48.2	(15)
	Total	15-18	52.6	49.7	16.6	27.0	(121)
		19-24	50.1	49.2	24.6	32.8	(99)

Table 11.4
Mean Years of Education Desired and Years Actually Attained in 1966 and in 1971: By Race, SES, and Ability

Men Aged 15-18

		Aspiration		Attainment		
Ability	SES	1966	1971	1966	1971	(N)
Whites						
lo	Total	12.9	13.2	10.2	11.6	(107)
	very low	12.7	12.6	10.2	11.6	(30)
	low	12.9	13.2	10.0	11.5	(39)
	mod/hi	13.2	13.7	10.3	11.8	(38)
mo	Total	14.3	14.3	10.8	12.6	(357)
	very low	13.5	13.5	10.7	12.3	(67)
	low	13.9	13.8	10.7	12.3	(119)
	mod/hi	14.8	14.8	10.9	12.9	(171)
hi	Total	15.8	15.8	10.9	14.0	(510)
	very low	14.8	14.8	10.7	13.3	(67)
	low	15.5	15.5	10.7	13.6	(122)
	mod/hi	16.1	16.2	11.0	14.4	(321)
TOTAL		14.9	15.0	10.8	13.3	(974)
Blacks						
lo	Total	13.5	14.0	10.3	11.8	(103)
	very low	13.6	13.9	10.3	11.7	(60)
	low	13.0	13.9	10.3	11.7	(36)
	mod/hi	--	--	--	--	(7)
mo	Total	14.5	15.3	10,4	12.6	(77)
	very low	14.2	14.8	10.2	12.6	(39)
	low	14.6	16.0	10.7	12.7	(32)
	mod/hi	--	--	--	--	(6)
hi	Total	16.3	16.4	11.1	13.8	(20)
	very low	--	--	--	--	(9)
	low	--	--	--	--	(4)
	mod/hi	--	--	--	--	(7)
TOTAL		14.1	14.7	10.4	12,5	(200)

Table 11.5
Mean Years of Education Desired and Years Actually Attained in 1966 and in 1971: By Race, SES, and Ability

Men Aged 19-24

		Aspiration		Attainment		
Ability	SES	1966	1971	1966	1971	(N)
		Whites				
lo	Total	12.2	12.7	11.4	11.6	(124)
	very low	11.5	12.0	11.0	11.1	(42)
	low	12.0	12.7	11.2	11.4	(38)
	mod/hi	13.1	13.2	11.9	12.2	(44)
mo	Total	13.9	14.1	12.4	12.9	(376)
	very low	13.3	13.3	12.3	12.5	(84)
	low	13.3	13.8	12.0	12.4	(114)
	mod/hi	14.5	14.6	12.8	13.4	(178)
hi	Total	15.8	15.8	13.7	14.8	(452)
	very low	15.3	15.5	13.4	14.3	(67)
	low	15.2	15.1	13.0	14.1	(94)
	mod/hi	16.0	16.1	14.0	15.1	(291)
TOTAL		14.5	14.7	12.9	13.6	(952)
		Blacks				
lo	Total	12.2	13.4	11.4	11.5	(76)
	very low	11.8	13.0	11.2	11.2	(36)
	low	12.0	13.4	11.2	11.3	(27)
	mod/hi	--	--	--	--	(13)
mo	Total	13.8	14.5	12.3	12.9	(43)
	very low	13.4	14.8	12.0	12.7	(20)
	low	14.4	13.9	12.5	13.0	(18)
	mod/hi	--	--	--	--	(5)
hi	Total	16.2	15.9	13.6	14.4	(17)
	very low	--	--	--	--	(9)
	low	--	--	--	--	(4)
	mod/hi	--	--	--	--	(4)
TOTAL		13.2	13.4	12.0	12.3	(136)

Table 11.6
Mean Status of Job Desired and Status of Job Actually Attained in 1966 and 1971: By Race, SES, and Ability

Men Aged 15-18

		Aspiration		Attainment		
Ability	SES	1966	1971	1966	1971	(N)
		Whites				
lo	Total	39.6	35.7	17.0	22.1	(70)
	very low	29.9	31.7	15.4	22.1	(22)
	low	43.5	35.2	16.8	19.2	(24)
	mod/hi	44.5	39.8	18.7	25.0	(24)
mo	Total	49.9	47.6	19.1	32.3	(237)
	very low	42.6	44.1	16.2	33.2	(46)
	low	46.1	44.1	17.4	28.8	(76)
	mod/hi	55.4	51.4	21.4	34.2	(115)
hi	Total	63.4	60.2	22.7	40.1	(311)
	very low	49.3	45.6	14.0	25.7	(39)
	low	60.9	59.1	21.0	40.1	(77)
	mod/hi	67.2	63.5	25.1	43.0	(195)
TOTAL		55.5	52.6	20.7	35.1	(618)
		Blacks				
lo	Total	45.6	41.0	14.5	20.7	(65)
	very low	43.5	41.4	15.8	19.7	(39)
	low	41.6	36.1	12.9	21.6	(21)
	mod/hi	--	--	--	--	(5)
mo	Total	59.4	59.6	15.9	30.0	(45)
	very low	51.1	50.7	12.4	23.7	(22)
	low	64.5	67.7	19.6	35.8	(19)
	mod/hi	--	--	--	--	(4)
hi	Total	72.4	60.5	31.9	52.3	(11)
	very low	--	--	--	--	(3)
	low	--	--	--	--	(3)
	mod/hi	--	--	--	--	(5)
TOTAL		52.6	49.7	16.6	27.0	(121)

Table 11.7

Mean Status of Job Desired and Status of Job Actually Attained in 1966 and 1971: By Race, SES, and Ability

Men Aged 19-24

Whites

		Aspiration		Attainment		
Ability	SES	1966	1971	1966	1971	(N)
lo	Total	39.7	35.5	23.5	30.4	(92)
	very low	35.3	24.8	22.4	24.1	(32)
	low	37.1	37.5	21.1	33.4	(26)
	mod/hi	45.9	44.0	26.2	33.9	(34)
mo	Total	51.0	47.2	32.8	41.0	(317)
	very low	37.9	36.0	27.5	31.7	(71)
	low	49.5	44.5	30.6	37.5	(93)
	mod/hi	57.9	54.0	36.5	47.4	(153)
hi	Total	64.6	61.3	41.6	58.9	(369)
	very low	56.1	57.1	38.3	52.0	(54)
	low	62.3	57.7	32.8	31.9	(71)
	mod/hi	67.1	63.2	44.9	62.[illegible]	(244)
TOTAL		56.1	52.5	35.8	48.2	(778)

Blacks

		Aspiration		Attainment		
Ability	SES	1966	1971	1966	1971	(N)
lo	Total	40.0	40.2	19.7	26.9	(49)
	very low	36.8	36.1	18.7	26.6	(26)
	low	40.4	46.8	18.1	22.6	(14)
	mod/hi	--	--	--	--	(9)
mo	Total	56.7	57.0	28.7	34.3	(35)
	very low	57.6	51.0	22.2	31.8	(16)
	low	53.5	59.6	28.3	34.7	(14)
	mod/hi	--	--	--	--	(5)
hi	Total	67.7	60.6	30.9	48.2	(15)
	very low	--	--	--	--	(8)
	low	--	--	--	--	(4)
	mod/hi	--	--	--	--	(3)
TOTAL		50.1	49.2	24.6	32.8	(99)

and Juarez,1971). Second, there are big differences in aspirations for men from different ability and SES levels. This is also well documented (e.g., Sewell and Shah, 1968a, 1968b). Third, actual attainments do not differ much by race for men with comparable backgrounds. Research on older cohorts of men (e.g., Blau and Duncan, 1967) finds larger apparent racial differences in attainment processes, but studies of more recent cohorts (e.g., Hogan and Featherman, 1977) suggest that black (at least Northern black) attainment processes have become quite similar to those of whites.

The tables show other interesting results though. Looking at the results of educational aspirations and attainment shown in Table 11.2, it is apparent that it is the least advantaged men--low ability whites and low and moderate ability blacks--who changed their educational aspirations most. They increased their aspirations on the average by half a year to more than a whole year, these increases perhaps reflecting a rising floor on what is considered an acceptable minimum level of education. The more advantaged groups did not change their aspirations at all on the average. Individual men in the more advantaged groups no doubt changed their aspirations--some up and some down--but as a group they seem to reflect a steady environment. Returning again to the changes that were found across the five years, however, they do not appear large compared to initial differences between the groups which existed in 1966. In general, it appears probable that reinforcements received by men during the five years tended to change the aspirations of less advantaged groups to some extent, but they were largely consistent with differences in reinforcements which the different SES-ability groups received in earlier environments. This is true for both blacks and whites.

Furthermore, if one looks at actual attainments, aspirations tend to be higher than actual attainments by a fairly constant amount across all groups. It is as if all groups had set their targets a little high but within a reasonable distance of what they thought possible to reach. The gap between goals and attainment is somewhat higher for blacks than for whites, largely because blacks set their aspirations higher. The goals-attainment gap is between one and two years for whites in all ability groups but a bit higher for blacks. It is also interesting to note that the higher ability groups attain more by 1971 than the lower ability men even aspired to in either year.

In summary, although all men appear to set higher aspirations for themselves than they eventually fulfill, their aspirations nevertheless strongly reflect differences in social position that eventually reveal themselves in differences in actual attainment as well. And the races differ in their aspirations, but do not clearly differ in how social background has differentiated them according to either aspirations or attainment.

The results for occupational status in Table 11.3 are in many respects the same as for education: blacks have higher aspirations but do not have clearly lower attainments holding background constant, this resulting in a larger gap between aspirations and attainment for blacks than for whites. In other respects, the results for occupation differ from those for education. Whereas educational aspirations were maintained or increased, occupational aspirations are lowered over the five year period for three of the four groups studied. The drop in status aspirations is much the same regardless of ability or race (excluding the older blacks). This drop occurred despite the fact that all groups of men increased their occupational status over the five-year period.

Several explanations could account for the differences in results for educational and occupational status aspirations--the latter being lowered but the former not. By the time men are 15, they have had a decade of experience in schools and of reinforcement (positive or negative) for their performance in school. In contrast, these men have had much less experience in the labor market and thus their occupational aspirations have been subjected to less reality testing than have their educational plans. It is also true that it is easier to get more education than to get a better job, persistence counting less and competition more for occupational advancement than for educational advancement. Finally, the differing form of the educational and occupational aspiration items could conceivably account for the difference in trends. The occupation question, by asking for aspirations for age 30, may have forced respondents to take reality (i.e., the probability of getting any give job) into account more than did the education question which did not specify any age.

It is not possible to say as much about cohort differences in level of occupational aspirations as it was about cohort differences in educational aspirations because a different proportion of the two age groups are represented in Table 11.3. (Fewer of the young than the older men have had any job experience by 1966, aspirations were included only for those men who reported any job experience, and so a smaller proportion of the younger men are included in the table.) Despite this limitation, differences between the younger and older blacks are large enough and consistent enough with Table 11.1 to suggest a cohort difference among the blacks. (This was also suggested in Chapter 6.) Only the low and moderate ability groups will be discussed, because there are so few cases in the high ability group. Older blacks do not lower their occupational aspirations, in contrast to the three other groups of men. These were also the men who raised their educational aspirations most in Tables 11.1 and 11.2. Looking at their attainments, though, they are not as far ahead of the younger blacks in status as are older white men of younger ages; they are also further behind whites of the same age than are younger blacks compared to younger whites. As was suggested earlier, this group appears to have had their aspirations strongly reinforced, but perhaps the new opportunities they might have perceived were experienced too late in their occupational careers to do them much good.

Summary

To summarize, if we consider aspirations barometers of social environments--particularly in conjunction with actual attainments--the following conclusions might be drawn about the effects of different environments.

(1) The cohort differences and the actual increases in educational aspirations both suggest that secular changes in educational levels and the expansion of postsecondary schools in the 1960's have created a greater sense of opportunity (or necessity) for obtaining more education.

(2) Although these effects have been registered in the aspirations of both younger and--particularly--for older blacks, they have to be experienced early (before men are effectively committed to their educational and occupational careers) to be translated into attainments.

(3) The decreases in occupational aspirations over time for most groups suggests that men 15-29 meet obstacles in the labor market which cause them to reassess the probability that they will achieve their earlier goals. However, men who could be expected to meet the most obstacles--for example, men of low ability--have set their initial goals lower and so do not adjust their aspirations to a greater degree than do more advantaged men. Whatever the consequences of *decreasing* aspirations, men from different groups seem

to share them equally. As discussed in Chapter 8, however, these decreases are quite small.

(4) Differences in aspirations and attainments are large and consistent across different SES and ability groups. They exist among the youngest as well as the oldest men examined here, they exist in both years, and changes in either aspirations or attainments tend to be smaller than the initial differences.

(5) Educational and occupational aspirations are definitely higher among blacks than among whites of the same SES and ability level, and occupational attainments may be only somewhat lower for blacks. However, the pattern of SES and ability differences found among the whites is replicated among the blacks. The races appear to share the same effects of SES and ability distinctions.

(6) The racial differences in aspirations--and particularly in attainments--are not large compared to the differences found by SES and ability. The cohort differences among the blacks suggest that this may be a recent phenomenon. The implication of this is explored further below.

In short, a picture emerges of a system of differentiation determined strongly by SES and ability. Whatever the differences are in the environments people of different SES and ability levels experience, they are enormously influential. They either affect the individual permanently early in life or else they provide very consistent reinforcement from early in life. Some secular changes in the general social climate affect many or all groups, although some groups may be more affected than others. For example, the low ability groups raised their aspirations the most during the five-year period studied. Such widespread changes do not appear to appreciably alter the distance between different SES groups, however. And whatever general process is responsible for the lowering of occupational aspirations from ages 15 to 29, its effect is small in magnitude compared to the influences which shaped earlier aspirations and which created enormous differences between SES groups to begin with.

The cohort differences among the blacks suggest that specific historical events such as the civil rights movement may have a more selective effect on some social groups and therefore operate to decrease the distance between some social groups.

Before I go any further, I should mention several conclusions that readers may be tempted to draw but which are not warranted on the basis of my results. The first unwarranted conclusion is that because the most important causes of educational and occupational handicaps may be experienced early in life and that people are born into these environments, we should focus exclusively on children or possibly there is nothing that can be done about it because we cannot change their parents. The second unwarranted conclusion is that race per se is no longer a handicap.

The two conclusions I want to draw are as follows. First, although SES and ability are enormously important and although one is by and large born into them, it is not necessarily true that "nothing can be done about it." The problem is that we do not know what to do about it. Social background differences are differences in social environments, including differences in values, access to information, financial resources, potential role models, job contacts, and much else. These are all things which can conceivably be altered.

Second, social background is becoming more important compared to race (cf. Wilson, 1978) in determining the fate of blacks. As racism recedes, social class differences loom large. If all blacks were suddenly to be treated exactly like whites of similar SES background and ability, most blacks would still face enormous handicaps. The last table presented here--Table 11.8--is a stark reminder of this. When classified by both SES and ability, one-third of the whites are in the high-SES-high-ability group and only about 4 percent are in the low-ability-low-SES group. It is exactly the reverse for blacks. Even if we assume that most blacks are misclassified by ability level, there are still large differences in SES--and as the tables show, SES also affects both aspirations and attainments.

Insert Table 11.8 About Here

Racism is surely still a problem. But the problem for us in the future is related to ability and SES. We had better learn exactly what it is about these distinctions that is important--it is probably much more than just poverty--in order to decrease racial differences in the future. And because basic changes in what we consider to be meritocratic might be necessary in order to effect any significant decrease in racial differences in attainment, we had better be prepared to make some very hard choices in the future.

Table 11.8

Percentage of Men in Different SES and Ability Groups: By Race and Age

Race	Ability	Age in 1966	SES Very Low	 Low	 Mod to High	Total
White	Low	15-18	3.1	4.0	3.9	11.0
		19-24	4.4	4.0	4.6	13.0
	Mod	15-18	6.9	12.2	17.6	36.7
		19-24	8.8	12.0	18.7	39.5
	High	15-18	6.9	12.5	33.0	52.4
		19-24	7.0	9.9	30.6	47.5
	Total	15-18	16.9	28.7	54.5	(N = 974)
		19-24	20.2	25.9	53.9	(N = 952)
Black	Low	15-18	30.0	18.0	3.5	52.0
		19-24	26.5	19.9	9.6	55.9
	Mod	15-18	19.5	16.0	3.0	38.5
		19-24	14.7	13.2	3.7	31.6
	High	15-18	4.5	2.0	3.5	10.0
		19-24	6.6	2.9	2.9	12.5
	Total	15-18	54.0	36.0	10.0	(N = 200)
		19-24	47.8	36.0	16.2	(N = 136)

Chapter 12

IMPLICATIONS FOR STRATIFICATION THEORY

The role of education and occupations in stratifying society has been a major concern in sociology since its birth. Recently, we have seen a new development in this topic--the study of how the occupational world is segmented into labor markets. This volume has looked at differences among labor markets as they are measured by Holland fields of work--their consequences for the attainment of individuals and the process by which individuals enter these different markets. My purpose here is to review some contributions of these results to stratification theory and research. Although labor market researchers differ in their definitions of labor markets (e.g., Marxist categories, core-periphery industrial distinctions, dual labor markets), all the research finds differences in income determination in these markets and that these differences may be helpful in explaining inequalities by race and sex (Wright and Perrone, 1977; Wright, 1978a, 1978b; Beck, Horan, and Tolbert, 1978). My own work with a status-field classification is no exception. I will remind readers of some of these common findings, but I will not go into a comparison of the details of either the procedures or the findings of the different perspectives on labor markets. What is more important at this point is to review some results which go beyond the major outline that is emerging in the field and which, though not always at odds with what we have believed, at least force us to think a little differently about labor markets and stratification. These results also suggest that our theorizing in sociology has been heavily influenced by our own class position as academics.

Two Challenging Findings

I have singled out two findings to discuss. For purposes of this discussion, I will illustrate the findings using only two simple cross tabulations and one figure. Results are presented only for white men, but the conclusions are not changed when blacks and women are examined.

The two findings are simple, even obvious, but they challenge some of the basic and often unspoken assumptions of current stratification theory. The first finding is that occupational status and income are somewhat independent occupational rewards and that there exist several occupational elites, one advantaged in income, one advantaged in status, and one advantaged in both income and status. The second finding is that education is more important in some fields of work than in others, that the basis of its importance varies from one field of work to another, and that it is not most important in the most economically advantaged occupations as seems to be assumed in much theory. The next section will illustrate these findings and will point out a few of their implications for stratification theory. The following section will speculate about the explanation of these findings and will develop their theoretical implications more clearly.

Conclusion One: Variations in the Extent to Which Good Jobs are High Status Versus High Income

Embedded within most discussions of income attainment is some statement to the effect that good jobs (i.e. high status jobs) pay better than less desirable jobs. Accordingly, occupational status is almost always included as a determinant of income in regression models predicting income. But income and status can be seen as somewhat independent occupational rewards, that is, as two outcomes, one of which(status) may occur before but not necessarily cause the other (income). Table 12.1 shows what happens if income and prestige in the different categories of work are examined from this point of view. This table presents in another form results reviewed in Chapter 2.

Table 12.1 shows the mean income and mean status of men in four age groups--26-35, 36-45, 46-55, 56-65. The means are shown separately by field of work and by five levels of education--9-11,12, 13-15, 16, and 17 or more years of education. Data are from the 1970 Census and include only white men employed fulltime in 1970 (N = 27,067).

Insert Table 12.1 About Here

This table shows that income and status differences between the age groups (excluding the youngest age group) are small compared to differences by educational level and field of work. Therefore, the following discussion will focus on the 46-55 age group, men presumably at the peak of their careers.

When men in the five fields of work are examined separately, the more highly educated groups also earn the most money and have the most prestigious jobs. However, the pattern of increases in income and status suggest that the types of payoffs or criteria of achievement differ by field of work. Higher levels of education compared to lower levels are associated with large increases in income among men in enterprising and investigative work; with more moderate increases in realistic and conventional work; and with only small increases in social occupations. For any particular educational group (with the exception of thelowest educational group included where there are only a few cases in investigative, conventional, or social work),

Table 12.1

Mean Income and Occupational Status of White Men Employed Fulltime: By Age, Education and Field of Work (1970)

Field of Work	Years of Education									
	9-11		12		13-15		16		17+	
	$	Status	$	Status	$	Status	$	Status	$	Status
					Ages 26-35					
Ent	8759	44	10070	46	11450	49	13290	52	15090	60
Inv	7957	45	9620	48	10190	55	12840	65	14050	72
Conv	6430	42	7800	43	8540	49	11000	54	11470	56
Real	7634	32	8620	35	9330	38	11280	49	13030	52
Soc	7284	39	8940	46	7410	48	8550	60	9540	63
					Ages 36-4[illegible]					
Ent	11093	46	12040	48	13720	49	18850	52	21210	59
Inv	9719	48	10580	50	11830	59	16190	65	23480	75
Conv	9452	46	9680	45	9830	47	14670	53	15140	58
Real	8668	33	9410	36	10760	40	13470	51	14250	55
Soc	9506	40	9080	44	9950	50	10660	59	11560	64
					Ages 46-55					
Ent	11708	45	13130	48	15420	50	20150	52	23650	59
Inv	9095	45	11140	51	13260	57	17840	66	25620	74
Conv	9357	41	9960	45	11730	49	16310	54	16900	52
Real	8535	34	9490	36	10040	38	15380	48	16340	55
Soc	7485	43	9680	43	10990	49	12580	55	13870	64
					Ages 56-65					
Ent	12166	46	12600	48	15120	50	20470	52	24680	60
Inv	9214	47	11480	52	11280	56	15690	65	26530	78
Conv	8749	41	9590	44	11450	50	13710	54	16840	54
Real	8299	34	8740	35	8640	37	12610	45	11530	51
Soc	9500	39	9560	46	10340	51	11880	60	12990	64

the fields of work are almost always ranked from high to low income in the following order: enterprising, investigative, conventional, realistic, and social. The income advantage of being in investigative or enterprising occupations increases with higher levels of education. To illustrate, the maximum difference in mean incomes between fields of work is $3,640 among men with 12 years of education but is $11,750 among men with 17 or more years.

However, the pattern is different for status. The rankings of fields are not the same as for income. Men in investigative and social occupations achieve the highest occupational prestige with increasing education, even though men in the social occupations receive the lowest income of all groups. These groups are followed in rank order of prestige by men in enterprising, conventional, and realistic work. It appears that higher levels of education lead to high levels of both income and status in investigative work, but not in the other fields. Increased education leads primarily to income in enterprising work, and primarily to status in social occupations. It leads to moderate increases in both income and status in realistic and conventional work.

Figure 12.1 is presented to schematize the results of Table 12.1 in a way that makes their meaning clear and memorable for later discussions. Three of the categories appear to follow the pattern which we expect for education. status, and income--the more of one, the more of the others. The three categories themselves can be ordered in this manner with realistic workers having the least education, status, and income, and investigative workers have the most on the average. Therefore, I have combined these three groups in Figure 12.1. Social and enterprising work remain as separate categories because they deviate considerably from the expected pattern.

Men aged 36-65 have been combined because their patterns of results are the same.

Insert Figure 12.1 About Here

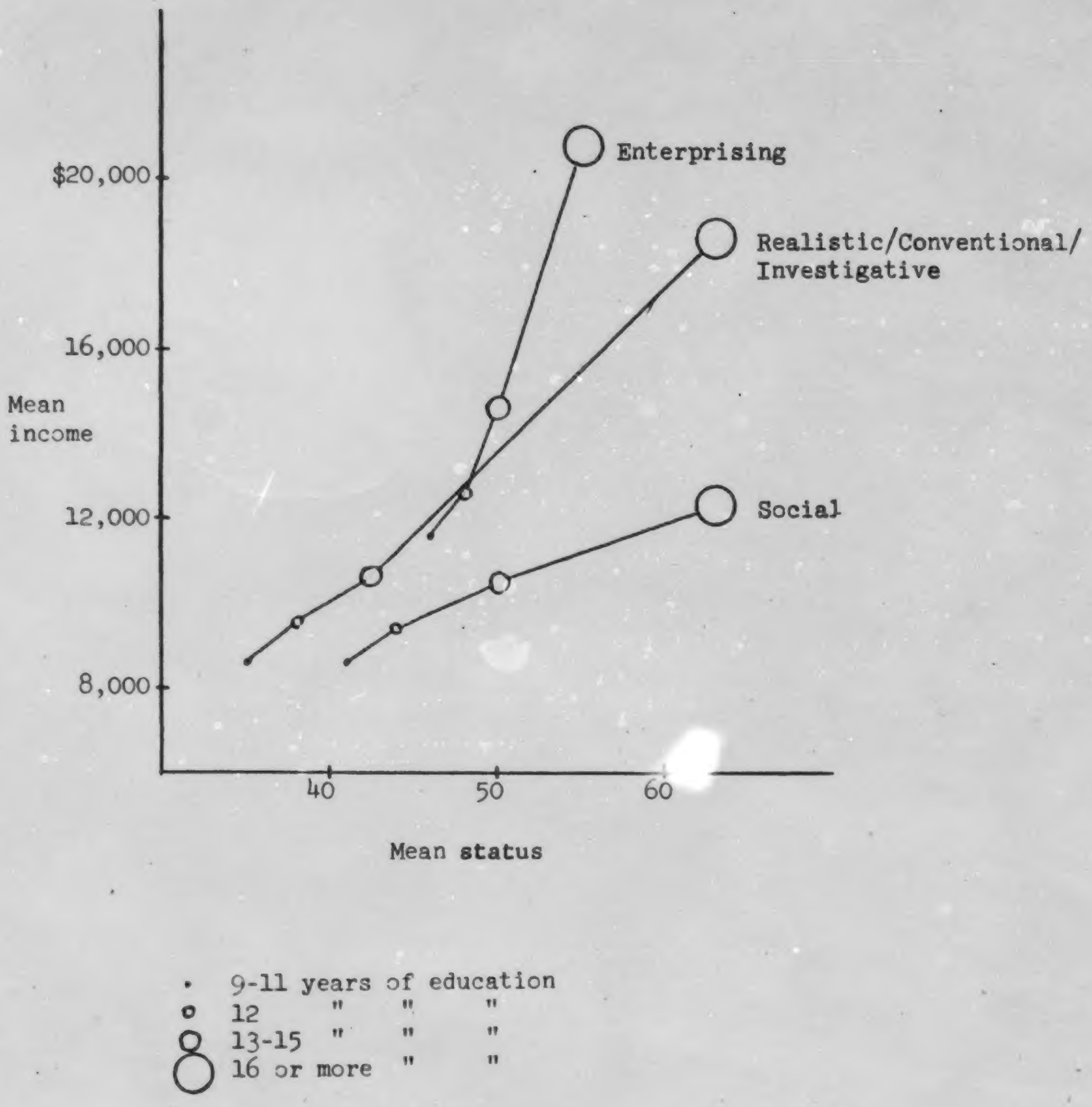
Figure 12.1 plots each educational group according to the mean income and mean status of the workers in that group. Means are plotted separately for workers in the three categories of work, and a line joins the four different educational groups plotted within each category. The middle line is for the combined realistic/conventional/investigative group. These three lines can be characterized as three different paths to success as one rises in educational level--with the paths leading to somewhat different types of success. Higher levels of education are associated with high income in enterprising work but with high status in social jobs.

These results may not surprise you. In fact, you may say "of course, we all know that." Enterprising work is entrepreneurial work, including sales and management jobs; social jobs include jobs in education and social service. Teachers and other workers in social jobs are typically considered "underpaid" and enterprising workers "overpaid" (Westbrook and Molla, 1976), indicating that it is common social perception that the income of these groups is somewhat at variance with what is usually expected. The results themselves may not be surprising, but taking them seriously has important implications for the study of labor markets and social stratification.

To simplify matters, we could say that in Figure 12.1 we see three types of good jobs--high-paying but not particularly high-status jobs, high-status but not particularly high-paying jobs, and both high-paying and high-status jobs. In short, there is no single hierarchy that distinguishes good from bad jobs. When we try to predict who gets high-paying

Figure 12.1

Mean 1970 Income and Status in Three Categories of Work (Enterprising, Realistic/Conventional/Investigative, and Social): White Men Aged 36-65 at Four Educational Levels



jobs, we are essentially predicting who gets into high-level enterprising (entrepreneurial) and investigative (scientific and medical) jobs. When we predict occupational status, we are predicting who gets into a somewhat different set of jobs--investigative and high-level social jobs. This also makes clear that conceptualizing income and status as somewhat independent rewards means that it is often inappropriate to control on status when predicting income. Saying this may seem like I am making a technical point--that I am referring to specification bias in income determination models. This is true, of course, but it is a minor point.

More importantly, these results suggest that the labor market is not segmented only hierarchically. It suggests instead that there are several elite groups. And when you look at what else we know about occupational groups--that they differ in social values and life style fostered--it is clear that several occupational groups or labor markets can be considered competing status groups as Weber (1968) developed that term. For example, it was noted in an earlier chapter that Gordon (1975) concluded that Holland's six types "bear a striking resemblance" to the five factors emanating from the Survey of Interpersonal Values. I think the tendency of sociologists has been to scoff at the value of vocational choices for predicting one's occupational fate, not only because we assume that many people have very little choice about the jobs they get, but also because we assume that everyone would want the same jobs if they had any prospects of getting what they wanted. If we allow, though, that there are several types of good jobs and that they constitute very different social milieaux (often with conflicting values), then it makes sense after all to ask about the formation and pursuit of vocational choices--at least for individuals with some chance of entering one of the elite groups.

The foregoing conception of labor markets as including several competing elites (c.f. Bottomore, 1964) is quite different from current models of labor markets. Although sociologists have begun to stress the importance of structural variations in labor markets--hence, the growth of this topic in sociology--jobs are still ordered undimensionally. Within dual labor market theory (e.g. Gordon, 1972) jobs in the primary sector are clearly superior to those in the secondary market. Turning to a slightly different conceptualization of markets, jobs in core industries are better than jobs in peripheral industries (Beck, Horan and Tolbert, 1978). Marxist conceptions (e.g. Wright, 1978b) include more than two groups of workers but still order them from the least to the most exploited. Most sociological conceptions of labor markets leave one with the sense that the most favored group of workers--usually businessmen--are exploiting all others, that there is a victim and a victor. Some workers are just bigger victims than others.

I am not saying there are no victims in my view of the world. Much of my work is devoted to understanding occupational segregation by race and sex. I am simply pointing out something interesting about who we tend to label the exploiters. Most college professors are classified as being in social jobs, jobs of high status but only moderate pay. Academic researchers are classified as investigative workers. In either case, professors belong to an occupational status group which has social values quite divergent from those of enterprising (entrepreneurial) workers. In addition, those entrepreneurs are better paid even though they typically have less education. Academics may or may not be wrong, but it is quite understandable that they would label entrepreneurs as the exploiters of society given the membership of academics in a quite different status group. The belief systems of academics are conditioned (as they are for all people) by their status group membership and these in turn determine which theories they tend to accept or reject.

Conclusion Two: Variations in the Association of Education with Status and Income

I would now like to highlight one more set of results, results about the importance of formal education for entering and succeeding in the different fields of work. The results in Table 12.1 indicate in a rough way that education is more important in some fields of work than in others. I will not review the more elaborate analyses reported earlier, but will say that when income is regressed on education (controlling for several other income determinants) regression coefficients for education vary widely in the different categories of work. When occupational status is controlled (which is typical procedure though, as I have said, probably inappropriate), the metric coefficients for white men 36-45 in realistic, social, conventional, investigative, and enterprising work are respectively 274, 475, 168, 986, and 661. When prestige is not controlled they are respectively, 442, 1586, 361, 1250, and 796. These results are mentioned to show how dramatic the differences are. And as discussed in Chapter 4, analogous results have been used by other researchers (e.g. Wright, 1978b) to argue that the returns to education vary according to the labor market one works in. I would like to mention a few more results, though, that provide a clearer picture of how education is or is not important to occupational success and which challenge some assumptions about educational stratification.

The regression coefficients listed above suggest that education may be most important for income in enterprising work (if status is considered a determinant of income). This is essentially consistent with what Wright (1978b) found because his manager/supervisor group is largely enterprising workers. Only in a limited sense is this conclusion true, however because the educational level required to enter that work can be quite low. Table 12.1 indicated that if a man has only a high school education or less, enterprising work is by far the most economically rewarding. In contrast, as Table 12.2 suggests, a college degree appears to be essential for entering many jobs in either of the two other major groups of "good" jobs--social and investigative work''because half of the workers in those jobs have a college degree. Again, the more elaborate discriminant analyses reported in Chapter 10 controlling for family background, IQ, and other background variables support this conclusion.

Insert Table 12.2 About Here

I will summarize the results by referring again to Figure 12.1. Education is linked much as we expect to success in the realistic/conventional/investigative set of jobs. Realistic (manual and skilled trades) work requires little schooling, is not prestigious and pays little; conventional (clerical and other lower white collar) work requires more academic skills and is generally more prestigious and better paying work; investigative (scientific and medical) work requires much education, is quite prestigious and often pays well.

The results for men in enterprising and social occupations deviate from the expected pattern, though. Enterprising work is high paying but often does not require a high education nor is it very prestigious. Conversely, social occupations require extensive education, are generally prestigious,

Table 12.2

Percentage of Men in Different Educational Levels and Fields of Work: White Men 26-65 Employed Fulltime

Field of work	Years of Education ≤8	9-11	12	13-15	16+	Total
	Percentage at each Educational Level: By type of work					
Real	27	25	37	8	3	100
Inv	7	8	23	15	47	100
Art	2	6	25	22	44	100
Soc	5	7	19	10	59	100
Ent	7	13	33	20	26	100
Conv	6	11	36	23	24	100
TOTAL	17	19	33	13	18	100
	Percentage in each Type of Work: By Educational Level					
Real	82	72	59	34	10	53
Inv	3	4	6	10	21	8
Art	<1	<1	1	3	4	2
Soc	2	2	4	5	21	6
Ent	10	18	25	39	38	25
Conv	2	4	6	10	8	6
TOTAL	100	100	100	100	100	100
			(N)			
Real	3861	3634	5290	1170	484	14439
Inv	156	187	503	332	1031	2209
Art	10	27	110	97	192	436
Soc	81	125	316	172	995	1689
Ent	476	900	2246	1364	1751	6737
Conv	94	177	566	353	367	1557
TOTAL	4678	5050	9031	3488	4820	27067

but do not pay well. Education is clearly not responsible for the income differences found in enterprising work nor is it sufficient to produce such effects in social occupations.

If we consider occupational success to be either high income or high prestige, then education seems overall to be most important in social and investigative work, less important in conventional and enterprising work, and least important in realistic work. (See L. Gottfredson, 1977, for a more detailed discussion of the results supporting this conclusion.) The formal educational system therefore appears to be a conduit to two types of high-level work--investigative and social jobs. Because occupational success seems to be readily available in enterprising work without much education in many cases, the educational system is clearly not as important as a conduit to attainment in enterprising work. The implications of this conclusion for stratification theory will become clearer when I discuss why these variations exist, but I will mention one thing now. Conflict theories of educational stratification maintain that education is valuable largely because education is used by elites to legitimate their advantageous position within the social system rather than because education contributes to worker productivity. Although the elite referred to is usually the income (and therefore a business) elite, my results show that this occupational sector has lower educational requirements than other sectors. If education is a tool of the income elite, it is puzzling why they have less education than other occupational groups.

Explanations and Implications

Substantial variations in rewards and their determinants exist in different spheres of the occupational world. My work shows this. The work of others is increasingly demonstrating this as well. The task now is to go back and explain why these variations exist, and why they exist in the particular patterns that they do. It is also time to see how these variations support or modify existing theories of stratification. In the following discussion, I speculate about the answers to two questions. First, why do patterns of reward vary among different labor markets? I will focus on the narrower question of why we find large differences in the mix of income and status in different occupational elites. Second, why is education more important in some fields of work than in others, and how is it important?

Explaining the Different Mixes of Income and Status

I am assuming now that enterprising, social, and investigative workers belong to different elites (if they belong to any elite at all). My speculations for their different patterns of reward are based on the following assumptions. Workers in the different fields of work perform different functions in society. The functions they perform provide them access to different sources of power in society. Because the sources of power differ, so do the desired goods which can be obtained from those sources.

At first glance, the power of enterprising work appears to be based on its control over the production of goods. Because enterprising work corresponds roughly to the Marxist-type categories of bourgeoisie and manager, one explanation that immediately springs to mind is that enterprising workers control the social relations of production. But this explanation is weak, particularly in our day of some very strong labor unions. It is also weak if we realize that not only do business owners and managers make a lot of money, but many of their salesmen do too. Salesmen (also enterprising workers) do not directly control the labor of others. The control they do have, and which they share with managers, is some measure of control over customer tastes and consumption patterns. Their rewards are those contingent upon customers making purchases in the private sector, and no particular esteem (i.e. occupational prestige) is accorded them for their role in promoting and profiting from these transactions.

Workers in social jobs perform functions which are highly valued in society, such as the maintenance of education, health, religion, and the socialization of the young. They are often services which are designated by professionals and public officials as necessary for the health and welfare of citizens. These are the services for which consumers either will not pay (public health services), cannot pay (welfare and rehabilitation services), or are not expected to pay directly (primary and secondary education). Revenues for these services are not directly related to public demand and the activities are generally funded by non-profit or voluntary organizations or by government. These funding agencies are not likely to raise much more money than absolutely necessary to maintain services. Furthermore, an increase in demand for goods and services means increased revenues in the private sector but it means a strain on already limited budgets in the public sector. As a result, the general level of income for providers of social services is low and fluctuates little if at all with changes in demand for services. Although poorly paid, such jobs may be accorded a high degree of respect because of the functions performed. Explanations for the low income among the helping occupations--such as teaching--often revolve around the non-competitive market position of the women who often predominate in them. We might ask, though, if we would expect incomes to be much higher even if all such workers were males once we consider the sources of funds available to pay those workers.

The power of investigative workers is based on the mystery and practical usefulness of fairly abstract knowledge. For their production and apparent control of this knowledge they are accorded prestige. To the extent that they can use this knowledge to produce marketable goods and services, they reap monetary rewards. Physicians are a prime example of workers able to garner both income and respect for their services.

Having arrayed occupational or social groups from most to least advantaged, and having not allowed for several advantaged groups, sociological theorizing has tended to focus on only one source of power in society. This is apparent in Marxist theories of social class, which focus on control over the social relations of production. As more empirical research is being conducted with Marxist categories and as more anomolies are discovered, however, conceptions of occupational groups and their bases of control are being revised. For example, Wright (1978b) was unable to explain the low pay of college professors within his managerial class, and he has since (1978a) created a new worker category--semi-autonomous employees--which is characterized not by its control over employees or subordinates but by "a lot of freedom and decisions."

Explanation of Variations in the Importance of Education

Explanations about the value of schooling state that schools either select or produce students with one or more of the following such characteristics: intelligence, trainability, technical skills or knowledge, social skills, personality traits such as obedience, or ascribed social attributes such as race, sex, or social class. These traits are often discussed as reflecting either a conflict or a functional basis of educational stratification (Collins, 1971). That is, some characteristics are seen as actually contributing to worker productivity, whereas others are simply criteria used by the elite to legitimate selecting persons of their own kind for good jobs.

There is disagreement about whether some traits such as IQ are actually functional or not (Bowles & Gintis, 1972/1973), but more often it is assumed that the other traits fall into either the functional or the conflict category. For example, academic and technical skills generally are considered to be functional, with social skills or race falling into the conflict category. The truth probably is that any trait can be classified as either functional or not depending on the type of work considered. This point should become clear below.

At least four characteristics of work seem important in accounting for the differential importance of education for entering and succeeding in various types of work: (1) the use of academic competencies on the job; (2) difficulty in evaluating worker performance; (3) high risk/high gain associated with variable worker performance; and (4) occupational values consistent with educational system values. The more of these characteristics that apply to an occupation, the more important education is likely to be for that field of work.

Table 12.3 summarizes speculations about how each characteristic applies to the six fields of work. None of the characteristics apply to realistic work but most apply to the types of occupations for which education is apparently most important--investigative and social occupations. v

Insert Table 12.3 About Here

(1) Use of Academic Competencies on the Job. Realistic work requires skills in working with things; investigative work demands skills in working with both data and things; enterprising, artistic, and social require skills in working with data and people; and conventional requires skills in working with data (L. Gottfredson, in press). If academic talents are assumed to be

Table 12.3

Four Predictors of the Importance of Education and Speculation about the Degree to which they Characterize Different Fields of Work

Characteristics	Fields of Work					
	Real	Conv	Ent	Art	Soc	Inv
(1) Use of academic competencies on the job	low	mod	mod	low	mod	high
(2) Difficulty of evaluating worker performance	low	low	low	mod	high	mod
(3) High risk/high gain from variable worker performance	low	low	high	low	high	high
(4) Congruence of occupational values with educational systems values	low	low	low	high	high	high
Importance of education	low	mod	mod	mod	high	high

required for working with data, then they are least important in realistic work. Education was also found to be least important in this type of work. Investigative work (science and medicine) could be expected to require the greatest academic skills because the work demands a high level of quantitative competencies and abstract thinking. Conventional work could be assumed to demand less abstract thinking and more manipulation of records, and so require less academic talent than for investigative work but more than for realistic work. This is consistent with differences in the importance of education and observed differences in mean test scores for people in these types of occupations.

As noted before, enterprising and social occupations are somewhat special cases. Holding education constant, men in enterprising work earn much more and men in social occupations earn much less than might be expected. One hypothesis might be that the most intellectually talented (but not necessarily highly educated) are drawn into enterprising work. However, this does not appear to be the case. IQ's are lower among men in enterprising work than they are among other groups of workers in high level jobs (see Chapter 10). Given the types of talents required in social and enterprising work, this is not surprising. Unlike realistic, conventional and investigative work, enterprising and social occupations require skills working with people--the former for selling, persuading, managing, and leading, and the latter for curing, teaching, enlightening, and helping. We would not expect academic skills to be as important for success in these types of work relative to non-academic skills, and we might expect that academic training typically does not provide these skills. Nevertheless, it is not clear why higher academic credentials should be required but be associated with lower compensation in social occupations than in enterprising ones.

Differences in the importance of education clearly depend on more than the types of talents that schools foster. As conflict theorists have pointed out, the advantage of an education is found not only in the academic talents and knowledge it fosters, but also in the credentials it confers. The next two characteristics illustrate why educational credentials may be more important in some types of work--regardless of actual talent.

(2) Difficulty in Evaluating Worker Performance. Credentials are often regarded as unfortunate by-products of the educational system partly because they are considered an illegitimate substitute by employers for actual measures of competence. To some extent this is true, but competence is difficult to measure in some types of work. It could be expected, then, that the fields of work in which competence is difficult to assess will also be associated with the highest educational credentials--particularly if variability in competence is associated with either high risks or high gain.

Performance measures are easier to construct and are more clearly meaningful in realistic, enterprising, and conventional work than in investigative and social occupations. Realistic work often results in tangible products which can be observed, counted, or tested. Quality of work and clerical aptitude can be readily assessed in conventional work. Sales volume and other economic performance are generally accepted criteria for evaluating salespeople and managers.

In contrast, performance measures are more controversial in investigative work. For example, scientists are typically evaluated according to the number of projects and publications they have produced, but judgments about the quality of most work vary so widely that there are no clear criteria for judging quality. Workers in social occupations are particularly difficult to evaluate and evaluation itself is often controversial. For example, explicit criteria are seldom used to evaluate teachers, and any evaluation at all is infrequent after the first probationary years.

If worker performance is difficult to evaluate, then employers will tend to base their evaluations on the techniques that the workers use rather than on the effects that they have. In turn, employers will tend to depend on credentials and extensive training as guarantees of worker quality. Hence, four or more years of college are more often required in social and investigative jobs than in the other types of work to ensure that a worker is competent. Unable to evaluate performance, employers demand extensive training and certification by educators who presumably should be able to judge competence.

(3) High Risk/High Gain of Variability in Performance. It is not clear that occupations can be ordered according to their importance to society as Davis and Moore (1945) suggest, but it is clear that people are more concerned about the consequences of variable performance in some occupations than in others. People are probably more concerned about performance when there is a possibility of strongly influencing the lives of people or the financial viability of an organization. People are more anxious about the consequences of incompetence or inappropriate behavior among people who work with people--for example, medicine, education, and social service --than among people who work with things (skilled trades) or records (clerical and office work). Organizations may also be more concerned about the monetary benefits and risks associated with the performance of salesmen and managers (enterprising workers) than with production (realistic) and clerical and accounting (conventional) personnel because managers and salesmen are the workers most likely to have important effects on the viability of the organization.

Jobs with high risk or high gain associated with variable performance are often the same as jobs which require considerable responsibility, but the notion of high risk/high gain is broader. For example, scientists (investigative workers) may have no direct responsibility for lives or money but their work may have profound long-term effects on both.

If employers are anxious to ensure that they have capable workers, they may fall back upon educational level as an indicator of general ability and so attempt to decrease their risks by employing the more educated person. Employers for high risk/high gain jobs may also employ more highly educated workers than they actually need in order to convince clients, boards of directors, the general public, and other interested parties that they employ "well qualified" workers.

(4) Values Congruent with Educational System. Both schools and occupational settings are potent social environments which influence the interests, activities, and values of individuals in those settings. Many educators insist that schools should develop in their students not only knowledge but also a variety of social and ethical values--good citizenship, humanism, intellectualism, responsibility, respect for others. Correspondingly, occupations also constitute "moral communities" (Durkheim, 1893/1964) which reinforce some interests and values but discourage others. Furthermore, divergent values and interests are encouraged by different occupational groups. Bookkeepers, realtors, high school teachers, musicians,and truck drivers not only perform different activities on the job they also have different self-images, life goals, political opinions, and standards of morality (Gordon, 1975; Holland, 1973; Campbell, 1971). Expressing an occupational preference means expressing a preference for a self-image and life style as well as a particular set of

job activities. Given our strong stereotypes of different kinds of workers and the surprising lack of knowledge about occupations among aspirants to most jobs, the preferences for life style may be more important determinants of occupational choice than are preferences for actual job activities.

The educational system can play a strong role in channeling people to different jobs, because the values dominant in the educational system are congruent with those of some occupations but divergent from those of others. Intellectualism, humanism, and a broad world view are all characteristic goals of schools--particularly of colleges--and are dominant values in investigative, social, and artistic occupations but not in realistic, enterprising, and conventional work, where practicality, power, and materialism are more dominant values. We would expect, then, that most schools would socialize students for the first three types of work. Universities in particular could be expected to be uncomfortable environments for aspirants to realistic, enterprising, or conventional occupations. Therefore, although higher education may not foster well the interpersonal competencies important in both social and enterprising occupations, education is a congenial environment for aspirants to social jobs but not for aspirants to sales, management, and other enterprising work. This could account in part for the greater importance of education for social jobs.

In our models of occupational attainment, sociologists have tended to underemphasize the non-academic, non-technical skills that may be functional in some types of work, particularly social skills. Correspondingly, we have tended to treat ability as a unidimensional trait of individuals, typically equating academic talent with "ability." So, for example, Collins (1971) pointed to the fact that employers often select employees on the basis of their social skills as evidence for the conflict theory of stratification. Many of his arguments, however, dealt primarily with selection for managerial positions, the positions he considered most elite. Such positions are enterprising jobs, and I have already shown that education is only moderately important in such work. Non-academic talents such as managerial, entrepreneurial, or persuasive skills may be extremely important (cf. Schumpeter, 1951). In short, I am arguing that the skills functional in enterprising work are quite different from what they are in many other kinds of work (particularly in the work with which academics are most familiar) and that it is not at all clear that Collins' evidence supports one theory or the other. In testing such theories, we need to be much more careful about the types of work we are considering. By imposing criteria that may be appropriate to many jobs in society but then testing them in an occupational world where they may have little relevance, it is not surprising that Collins found the weight of evidence in favor of conflict theory.

Chapter 13

IMPLICATIONS FOR VOCATIONAL THEORY AND PRACTICE

The previous chapter discussed the implications of this study for the study of careers and social stratification within the discipline of sociology. The present chapter reviews the implications for the second discipline I have discussed at length in this volume--vocational psychology.

Based on the results in this volume, I make five recommendations for vocational theory and practice. First, vocational theorists and researchers should recognize more explicitly that choices and opportunities are limited for many individuals. The usual implicit assumption appears to be that aspirations can usually be fulfilled, if only people can be helped to make good decisions. Second, counselors should be aware that some fields of employment, particularly enterprising work, may present better opportunities for minorities and women than do others, particularly social jobs. Most current concerns are with promoting the entry of minorities and women into fields of work requiring the highest levels of education (social and investigative work) even though high-paying jobs in enterprising work require less education. Third, we should pay more systematic attention to the characteristics of environments and how they influence career development. The current emphasis of vocational research is on assessing the individual and rarely on assessing the invididual's environment. Fourth, we should devote more attention to studying the implementation of career choices. We know a lot about why people prefer different occupations, but little about how they actually get them in the face of obstacles in the real world. And fifth, we should examine the extent to which the most strongly-held aspirations are largely circumscribed before adolescence and to what extent this circumscription is immune to--or not even addressed by--counseling interventions at later ages. Currently there is only occasional discussion of the relevance of assessment devices to the spectrum of problems counselors face in helping their clients, particularly disadvantaged clients. There is also little discussion of the ages at which interventions are likely to be successful.

These recommendations are not novel by any means, and readers might justifiably argue that vocational theory itself explicitly makes the same recommendations. I maintain, however, that current work is notably weak in these areas and so for all practical purposes, those recommendations have been ignored. They are discussed in detail below.

Recommendations

[illegible]) Recognize that the labor market limits the opportunities available to many people.

The results from this study are a vivid reminder that the occupational world severely constrains the options of workers and that workers must in some way adjust to this reality. Although little research has examined the barriers or thwarting conditions with which workers must cope, theorists are beginning to stress the need for such research (e.g. Crites, 1976; Krumboltz, Mitchell & Jones, 1978). But the results also remind us of another aspect of this reality that counselors and researchers are apt to forget if they deal primarily with the more advantaged sectors of society--that people must compete for the same limited supply and selection of jobs.

Probably few, if any, vocational theorists or researchers would maintain that people can train for and obtain any job they want--even if they have the ability for such jobs. The earliest theoretical statements are cognizant of limitations on choice. Ginzberg et al. (1951) and Blau et al. (1956) explicitly describe vocational choices as compromises between desires and expectations based on reality. Super (1957) also discussed the role that the economic and social environment play in restricting occupational choices. Recent statements by other theorists (e.g. Krumboltz et al., 1978) continue to include economic and social factors as influences on job entry. And Osipow (1969) has also suggested that more attention be focused on situational determinants and how the can be controlled.

Nevertheless, if one examines the foci of recent developmental theories and the counseling tools developed from them, the implications of limitations on choice appear to be ignored. For example, Crites (1978a) illustrates his comprehensive new model of career counseling with a case study of a high-ability college-bound high school student who is disturbed because she is undecided between social work and teaching. Nowhere in the entire volume are we faced with the considerably more poignant career problems which result from the restricted pool of jobs available in our society. For example, in 1970 about 2.5 million people were employed as janitors and maids, more people than were employed as either lawyers, doctors, accountants, or engineers (U.S. Bureau of the Census, 1973). And in that year 1.8 million people were unemployed for other reasons (U.S. Department of Labor, 1979). Many other illustrations of the restricted nature of the job market could be provided,but the point is that to some degree getting good jobs is a zero-sum game (i.e., when some people win, others lose), and many people must work in low-paying, low-prestige, low-security jobs if they are able to get jobs at all.

Krumboltz et al. (1978) clearly outline environmental factors that influence career aspirations throughout development, but one gets no sense that they recognize the barriers people face because their counseling recommendations focus entirely on the improvement of client decision-making skills (e.g., see page 127) and not on the environment. Development is conceptualized as the result of the interaction of person and environment in Super's influential work, but research in that tradition has usually focused on the assessment of vocational maturity, the readiness of individuals to make choices (e.g., see Super, 1974; Crites, 1961; Walsh, 1979). We might wonder, though, about the usefulness of focusing too much on client characteristics such as vocational maturity and too little on vocational opportunities. As Harmon (1974, p.83) notes, "...if the choices available to some individuals, i.e., minority group members, women, and the poor, are largely limited by sociocultural factors which the individual cannot control no matter how mature he or she is vocationally, perhaps counselors would do well to avoid putting too many eggs in the vocational maturity basket and devote some of their efforts to changing the labor market rather than clients." The same caution should be made for the interest assessments provided by the older trait-factor approach to vocational counseling. As valuable as these tools may be, we should not "put too many eggs" in the interest inventory basket either.

The relevance of measures of vocational maturity to minority group status has been discussed in the literature, but in a way that ignores the limitations on opportunity that minorities or any disadvantaged persons probably face. For example, in Measuring Vocational Maturity for Counseling and Evaluation (Super, 1974) the chapter devoted to minority groups (LoCascio, 1974) focuses entirely on the question of whether measures of vocational maturity are culture-fair or not. This question is raised by that author because blacks tend to get lower vocational maturity scores than do whites. LoCascio suggests that we should not be hasty in judging blacks less mature, but should perhaps instead adopt cultural pluralism as the proper perspective by which to view these differences. However, it may be more useful to investigate the possibility that realistically less optimistic expectations for career development are held by minorities and partly account for their lower maturity scores. Examination of individual items in Crites' (1973b) Attitude Scale for the Career Maturity Inventory suggests that this may be the case (e.g. "work is dull and unpleasant," "you get into an occupation mostly by chance," I really can't find any work that has much appeal to me," the most important part of work is the pleasure which comes from doing it," "your job is important because it determines how much you can earn"). I mention this issue to show that some groups of youngsters may be considerably less optimistic than researchers and counselors have traditionally been about career opportunities. Kerckhoff and Campbell (1977), for example, show that lower-class and minority youngsters do perceive fewer opportunities for themselves than do other youngsters and also that a sense of fatalism is inversely related to educational ambition level. I mention it also to show how pervasive is the tendency to overrate the usefulness (or harmfulness) of existing assessment devices and to ignore the environment which shapes responses to those devices and which continues to channel vocational behavior regardless of any future changes in test scores. The object, then, should not necessarily be to revise the assessment to make it more "fair" (i.e., to show fewer differences), but to understand more clearly to what extent the concept of vocational maturity is useful for counseling, particularly for counseling the disadvantaged. Once again, the same observation could be made about vocational interests.

Counselors may legitimately disagree about their proper role and their ability to change the opportunities clients have. But they should be ready to respond to Gordon (1968, p. 166) who says that if a vocational counselor "sees his job as primarily working with the individual, so that he is presumably better able to take advantage of the limited opportunities that are available, he will be doing only half his job, and the easier half..." If vocational theorists and researchers are to provide guidance to counselors, they must balance the weight of their concern over clients' vocational interests and decision-making abilities with a greater weight on investigating how the environment structures the choices available to different groups of individuals. This is true whether or not vocational counselors can actually change opportunities for their clients, because the information could be used at least to help predict adjustment problems and to design special counseling strategies. However, more attention might be profitably spent on teaching clients job search skills (e.g., see Wegmann, 1979) and how to make the most of their opportunities for securing a job and being successful on it.

(2) Recognize that some fields of employment, particularly enterprising work, may present better opportunities for minorities and women than do others, particularly social jobs.

The results I have reported here and elsewhere (1978a) show that women and blacks are over-represented in some categories of work but under-represented in others. The inverse relation between occupational level and proportion of women and blacks has been widely investigated, particularly by sociologists (Hodge & Hodge, 1965; Treiman & Terrell, 1975) and economists (Ashenfelter & Rees, 1973). What has not been so apparent before, however, is that over or under-representation of blacks or women is associated not only with level of work but is associated with both field and level. Social jobs appear to have been the most frequent source of high level jobs for both blacks and women in the past and conventional jobs have been the source of many moderate-level jobs. Although a large proportion of all workers are in enterprising work, it appears to have been an especially poor source of jobs at all levels for blacks.

These results describe what is and has been, not what should or might be, the structure of the work force. They suggest, however, where to start looking for inequities in the system. Another caution should be raised here as well. That women, blacks, or any other group are under-represented in an occupational group does not demonstrate that discrimination against these groups exists. It only raises that possibility. More discrimination may have been directed to black managers, administrators, and salesmen than to black educational, health, religious, and other social service workers, thus accounting partly for the low representation of blacks in the former, but their fairly high representation in the latter. But differences in representation could occur for many reasons, such as race-sex differences in skills or preferences for either type or level of work. The employment differences in level cannot clearly be explained by differences in aspirations for level of work, because black and female youngsters appear to have vocational aspirations at least as high as do white males (Cosby, 1971; Kuvlesky, Wright & Juarez, 1971). Differences in preferences for type or field of work may be important, though, in explaining some employment differences by race and sex, because there is ample evidence that interests for type of work differ by both race and sex (Kimball, Sedlacek, & Brooks, 1973; Hager & Elton, 1971; Doughtie, Chang, Alston, Wakefield & Yom, 1976; Birk 1975; G. Gottfredson & Holland, 1975).

Regardless of why these patterns of race and sex composition have occurred, they have some practical implications for helping blacks and women. First, it is not clear that it is to the advantage of women to increase their representation in realistic work because most realistic work is low-level work. Such a strategy is implied by those who argue that inventories are probably sex biased if they identify few realistic women and who urge that more women be assessed as having realistic interests. Such strategies would suggest to more women that they explore careers in types of work where high prestige occupations are rare. Second, women already constitute 62% of workers in high-level social jobs even though they constitute only 38% of all workers. Therefore, although social jobs constitute the largest pool of high-level jobs, women may more likely be able to improve their representation in high-level work by competing for enterprising or investigative jobs. In contrast, although blacks are best represented in social jobs, they are still under-represented in all types of moderate- and high-level work.

Secondly, women and particularly blacks may have faced strong barriers to employment in enterprising work, but enterprising work may nevertheless be a good source of jobs for blacks and women in the future if these barriers can be surmounted. Enterprising work may be a good source of high prestige work for several reasons: (a) there are now strong social pressures to increase the representation of blacks and women in this type of work, (b) it constitutes a large pool of jobs in the labor market, and (c) it is found at all levels of prestige and so may be an important channel for promoting women and blacks over time. It should be realized, however, that job adjustment may be more difficult in enterprising work for blacks and women if they are now under-represented because it has been an inhospitable environment for them. Adjustment will be easiest for workers with enterprising interests and competencies.

Nevertheless, blacks are economically disadvantaged because they are so seldom employed in enterprising work, whether by choice or not . This racial difference affects not only the incomes of individual workers and the well-being of their families, but also the future of black capitalism. It is probably among entrepreneurs (e.g., managers, salesmen, and business owners) that most wealth is created and controlled. It is in the entrepreneurial business setting that successful businessmen are trained and launched on their careers. But few blacks have been systematically exposed to this setting. The educational gap between blacks and whites is closing (Hauser & Featherman, 1976), but if blacks prefer or are channeled by discriminatory practices into socially desirable but less economically rewarding work, increased education may produce little growth in the economic strength of the black community.

Counselors should perhaps focus on providing black youngsters more systematic exposure to information, training and experience in sales, management and other enterprising work. Although such exposure might be useful for all groups of youngsters, it is especially important for blacks because they are less often exposed than whites to entrepreneurial work by family members actually working in enterprising jobs. It is important to provide such exposure before students leave high school because it may be less obvious to noncollege-going blacks than to such whites how to enter enterprising work. High school counselors as well as college counselors, particularly in the two-year community colleges, might develop more work-study programs with local businesses. Providing more experiences in and access to entrepreneurial work will require considerable coordination with private businesses because most enterprising work, and probably most training for enterprising jobs, is located in private business.

Appendix C to this volume is provided to help counselors locate jobs and organizations for potential programs. It lists all detailed occupational titles in the 1970 census that are enterprising occupations. A few occupations on the list are professional jobs that require extensive education--lawyers, judges and law college teachers. For the other occupations, however, entrepreneurial experience and competencies may be more important than educational credentials. Appendix C also provides the number of workers employed in each occupation in 1970 to indicate which occupations have provided the greatest number of jobs. The Occupational Outlook Handbook (U.S. Bureau of Labor Statistics, 1976) can be consulted to determine future prospects of employment in these occupations.

(3) Characteristics of environments and how they influence career development should receive more systematic attention. The types of opportunities and barriers in the environment that people face during career development should be catalogued and their distribution across different age and social groups systematically examined.

Such information is needed for determining a fair or rational allocation of counseling resources--who needs counseling services the most, at what age or stages in the life cycle and of what type? We have a lot of information about the demands and reinforcers of individual occupations from trait-factor research in vocational psychology (e.g., Campbell, 1971), from job analyses (e.g., McCormick, Jeanneret, & Mecham, 1972), and from periodic surveys and censuses of the population (e.g., U.S. Bureau of the Census, 1973), although these data are often not organized in the terms most useful to counselors. We have little data by comparison on the availability and location of these different environments. For example, Holcomb and Anderson (1977) discovered that out of 522 guidance studies between 1971 and 1975, 41 dealt with career information and only 2 of those with job availability.

Developmental (e.g., Super, 1957; Krumboltz et al., 1978) as well as congruence theories (e.g., Holland & Gottfredson, 1976) conceptualize career development in terms of the interaction of persons with their environments, but the environmental side of the equation has received the least attention. The person-job (trait-factor) matching schemes explicitly describe different occupational environments, but they too have stimulated only sketchy information about the distribution of such environments (e.g., their availability to different populations) and about the role of family, peer, school, neighborhood, and community environments. We need more information about the primacy of each of these environments for influencing both the development of vocational preferences (e.g. by providing role models, providing information or stereotypes about occupations, or fostering interests and abilities) and occupational opportunities at the time of job search (e.g., providing information about schooling, training and job openings).

Constraints which are acknowledged only implicitly in current discussions of counseling should be catalogued. For example, societal norms about what is appropriate career behavior for different ages or sexes are probably quite strong. Such pressures are implicitly acknowledged in discussions of indecision and of counselors' strategies for reducing the anxiety or guilt of being undecided(e.g.,Crites, 1978a)-- why would clients feel discomfort or guilt if they were not violating some expectation for their career behavior? Parent-child conflicts in occupational aspirations for the child are also cited as frequent problems.

Krumboltz et al.'s (1978) social learning theory of career selection is an excellent point for beginning an examination of such questions. One could take the environmental conditions and events they list (pp.102-103) and specify the opportunities for instrumental and associative learning experiences (pp. 104-105) these conditions present. Estimates of the availability of these opportunities to different populations at different ages would provide content for the learning propositions they put forward (pp. 114-126). Not only would this exercise be useful for understanding development, but it could also help counselors pinpoint what problems the environment of the client has posed or continues to pose for the client.

In addition, knowing more about the events experienced by individuals in particular client populations might also help in designing more effective counseling systems.

Relevant learning environments can be expected to differ systematically for the sexes and different ethnic groups. Such differences in learning environments are important partly because they may reinforce race and sex differences in employment. For example, I have suggested elsewhere (1978c) that exposure to a different pattern of occupational environments is partly responsible for black youngsters' adjusting their occupational aspirations toward different families of work than do whites when the youngsters abandon initial unrealistic preferences for professional work. The distribution of needs for counseling services should then be compared with the actual distribution of services. It is possible that counseling resources are most available to the most advantaged populations in our society (e.g., more available to college students than to non-college-bound youngsters) and thus to those who may need it least in the competition for jobs.

As mentioned above, the relative importance of different environments should also be examined. Reference to the sociological literature on status attainment, particularly the body of work referred to as the social-psychological status attainment and life cycle models, would be useful in future work on this question. Much of that literature is devoted to assessing the relative importance of different socioeconomic (e.g., family social class) and psychological (e.g., parental encouragement) influences on the development of aspiration levels. It also examines the importance of aspiration level as a mediator of those influences on actual job level attained as well as an independent contributor to level obtained. Sewell and his colleagues (e.g., Sewell & Shah, 1968a, 1968b; Haller & Portes, 1973; Sewell & Hauser, 1975; Sewell, Hauser & Featherman, 1976) have been central contributors to this literature. Whether or not vocational researchers find their methods (primarily regression and path analysis) and environmental variables suitable, the emphasis in tracing the influences of different socioeconomic conditions on aspirations and attainments throughout the life cycle and their estimates of the relative magnitude of those influences should be heuristic value. Kelso (1976) exemplifies an effort to incorporate this literature into the study of vocational choice.

(4) Study implementation of choices. Vocational psychologists and counselors have devoted much effort to understanding what makes a wise career choice and how people come (or should come) to make choices before entering the labor market. In contrast, we know little about how people implement career strategies in a world which severely constrains their options, so we now need to look more closely at what actually happens to people after they become employed.

Over two decades ago, Super (as quoted by Crites, 1978b) stressed the utility of knowledge about career patterns for career counseling and proposed research questions such as the following : What are the typical entry, intermediate, and regular adult occupations of persons from different socioeconomic levels? What factors are related to the direction and rate of movement from one job or occupation to another? But research attacking such questions in the last two decades has been conducted primarily outside the discipline by sociologists interested in questions of the perpetuation of inequality across generations (e.g., Blau & Duncan, 1967; Lipset & Bendix, 1959; Sewell & Hauser, 1975) and this large literature has only occasionally made its way into the vocational literature (cf. Vetter, 1978). Industrial and organizational psychology, with its focus on designing work systems that promote performance and satisfaction, also appears to be a good source of information about career development. This literature is better integrated into the vocational literature, largely through the writings of Hall (1976; see also Super and Hall, 1978). In the past, vocational counselors and researchers have turned toward other disciplines-particularly to psychotherapy-for insight into the structure of personality and personal adjustment. We now need to take similar advantage of disciplines such as sociology and economics for insight into the structure of the socioeconomic world with which individuals must cope.

(5) Recognize that occupational status preferences may be circumscribed at a very young age, long before the age at which developmental theorists assess readiness to make decisions and the ages during which they assume youngsters develop vocational maturity.

As discussed earlier, large net changes in aspirations for category of work occur among men between aged 15 and 28, the ages examined here. This is consistent with developmental notions that exploration and crystallization occur over a long period of development which extends into early adutlhood. The picture is different, however, if we examine aspirations for level of work. On the average, level of aspiration hardly changes at all among men studied here. If any major adjustment to reality has occurred for level of aspiration within either social class considered here, it appears to have occurred at earlier ages because there are large differences in the level of aspirations held by lower- and middle-class men. These results imply early differentiation and stability of status-level aspirations and are consistent not only with the sociological research mentioned earlier, but also with considerable evidence in vocational psychology (see Osipow, 1973, for a review) that values and preferences develop earlier than expected according to the stages outlined by Super (1957) and Ginzberg et al. (1951).

To understand vocational choices more completely, we must know more about the early processes whereby youngsters circumscribe their choices. Self-concept, perhaps the central concept in developmental theory, could be broken down into more specific components (such as Krumboltz et al.'s [1978] self-observation generalizations) that could be individually traced back into early childhood. The development of the concepts of one's own social position, race, sex, abilities, values, and interests may proceed at different rates, the first three probably developing before the latter three. Children may be aware of the jobs "people like them" usually hold and so circumscribe their aspirations to conform to their social-race-sex self-concepts long before they explore the suitability of their abilities, interests, and values to their remaining options. Vocational theorists attend primarily to ability self-concepts, interests, and values. But to explore only the latter stages of self-concept development may be to miss the major role of self-concept in career development.

Dilemmas and Solutions

One implication of the foregoing is that counselors (and vocational maturity and interest assessments) may really be dealing primarily with the vestiges of choice. Whether one views this as an appropriate role for counselors depends on one's goals for society as well as for individual clients. If one assumes that the early circumscription of aspirations on the basis of race, social class, or other social attributes is "unfair", one might advocate routinely broadening the aspirations of clients and not reinforcing those earlier choices. This was essentially the argument of those claiming that interest inventories are sex biased because men and women score differently on them (see Tittle & Zytowski, 1978). Whether one considers this development unfair in some sense, it is nevertheless likely that it is exceedingly difficult to alter after childhood. Furthermore, if this circumscription is the result of implementing one's self-concept, the client may experience the attempt by a counselor or an interest inventory to change the client's range of choices as an attack on his or her self-concept. These latter arguments were advanced by the defenders of interest inventories in the sex bias controversy (see Tittle & Zytowski, 1978).

I mention the interest inventory sex bias controversy not to revive it, but to futher illustrate the issues I have been raising and to put them into perspective. The sex-bias controversy arose from a value judgment by some people about the fairness of sex differences in responses to interest inventories. The same judgement could be made with respect to race, social class, or even ability, because vocational aspirations differ by race, class and ability and these differences appear early in life as is the case with sex differences (e.g., Sewell & Shah, 1968a, 1968b; Kerckhoff & Campbell, 1977). But the same cautions that we should have learned from the sex bias controversy can be applied to any future discussion of race or social class. Those cautions are that it is not clear what counselors can do about changing the aspirations of different populations, nor is it clear what actions are ethical or advisable.

These questions are difficult to answer and they are socio-moral ones as well as empirical. But there is another difficult issue which was not discussed in the sex-bias debate but which is nevertheless relevant to it. And it is essential in any discussion of improving opportunities for clients. The issue is that opportunities are limited, not just for some segments of the population, but for the population as a whole. If this is true, then fulfillment of aspirations may be a zero-sum game unless our society somehow produces people who largely want what they get (see Chapter 8 for discussion of this possibility) or unless the limits of the system are stretched through job redesign or other strategies (cf. Warnath, 1974). The limits of the system are implicitly acknowledged in studies on the "unrealism" of vocational choices because as Crites (1969: p. 316) notes, "The typical design of studies which have indicated unrealism in choice has been to compare the distribution of choices of high school and college students with the distribution of workers in occupations." Such studies generally imply that unrealism is undesirable Although others might argue that promoting realism is promoting the status quo, our counseling strategies nevertheless focus on adjusting the individual rather than the environment. By focusing on manipulating aspirations, our counseling strategies may in effect range from promoting aspirations which cannot be fulfilled to promoting more competition between less and more advantaged populations. None of these strategies alters the fact that many people end up with undesirable jobs, although we all might have opinions about which strategies are fairer.

In sum, designing more effective and fair counseling strategies requires tackling some difficult questions: How do aspirations influence career development? How do environmental circumstances influence the development and implementation of aspirations for both field and level of work? And what are the realistic prospects and ethical considerations for changing the aspirations and circumstances of individuals--and of whole groups of people?

References

Adler, A. Social interest. New York: Putnam, 1939.

Alexander, K. L., & Eckland, B. K. Basic attainment processes: A replication and extension. Sociology of Education, 1975, 48, 457-495.

Alexander, K., Eckland, B. K., & Griffin, L. J. The Wisconsin model of socioeconomic achievement: A replication. American Journal of Sociology, 1975, 81, 324-342.

Andrisani, P., & Kohen, A. I. Career thresholds: A longitudinal study of the educational and labor market experience of male youth, Vol. 5. Columbus, Ohio: The Ohio State University, Center for Human Resource Research, 1975.

Antonovsky, A. Aspirations, class and racial-ethnic membership. The Journal of Negro Education, 1967, 36, 385-393.

Ashenfelter, O., & Rees, A. Discrimination in labor markets. Princeton: Princeton University Press, 1973.

Astin, A. W., & Panos, R. J. The education and vocational development of college students. Washington, D. C.: American Council on Education, 1969.

Beck, E. M., Horan, P. M., & Tolbert, II, C. M. Stratification in a dual economy: A sectoral model of earnings determination. American Sociological Review, 1978, 43, 704-720.

Bell, D. The coming of post-industrial society. New York: Basic Books, 1973.

Benoit-Smullyan, E. Status, status types, and status interrelations. American Sociological Review, 1944, 9, 151-161.

Bielby, W. T., Hawley, C. B., & Bills, D. Research uses of the national longitudinal surveys. A research agenda for the National Longitudinal Surveys of Labor Market Experience (Part 5). Washington, D.C.: Social Science Research Council, 1978.

Birk, J. M. Reducing sex bias: Factors affecting the client's view of the use of career interest inventories. Issues of sex bias and sex fairness in career interest measurement. Washington, D.C.: Department of Health Education, and Welfare, National Institute of Education, 1975.

Blau, P. M., & Duncan, O. D. The American occupational structure. New York: John Wiley & Sons, 1967.

Blau, P. M., Gustad, J. W., Jessor, R., Parnes, H. S., & Wilcox, R. C. Occupational choice: A conceptual framework. Industrial and Labor Relations Review, 1956, 9, 531-543.

Blum, Z. D. White and black careers during the first decade of labor force experience. Part II: Income differences. Social Science Research, 1972, 1, 271-292.

Borgen, F. H., Weiss, D. J., Tinsley, H. E. A., Dawis, R. V., & Lofquist, L. H. Occupational reinforcer patterns: I. Minneapolis, Minnesota: Vocational Psychology Research, Department of Psychology, University of Minnesota, 1972.

Borus, M., & Nestel, G. Response bias in reports of father's education and socioeconomic status. Journal of the American Statistical Association, 1973, 68, 816-820.

Bottomore, T. B. Elites and society. Baltimore: Penguin Books, 1964.

Bowles, S., & Gintis, H. I.Q. in the U.S. class structure. Social Policy 3 (4 and 5), November/December and January/February, 1972 & 1973, 1-27.

Bowles, S., & Gintis, H. Schooling in capitalist America. New York: Basic Books, 1975.

Breme, F. J., & Cockriel,I.W. Work values and work interests: Are they the same? Journal of Vocational Behavior, 1975, 6, 331-336.

Byrne, J. J. Occupational mobility of workers. Monthly Labor Review, 1975, 98, 53-59.

Cain, G.G. The challenge of segmented labor market theories to orthodox theory: A survey. Journal of Economic Literature, 1976, 14, 1215-1257.

Cairnes, J. E. Some leading principles of political economy, newly expounded. New York: Harper & Brothers, 1874.

Campbell, D. Handbook for the Strong Vocational Interest Blank. Stanford: Stanford University Press, 1971.

Cohen, J. C. A coefficient of agreement of nominal scales. Educational and Psychological Measurement, 1960, 20, 37-46.

Cole, N. S. On measuring the vocational interests of women. Journal of Counseling Psychology, 1973, 20, 105-112.

Collins, R. Functional and conflict theories of educational stratification. American Sociological Review, 1971, 36, 1002-1018.

Cosby, A. Black-white differences in aspirations among deep south high school students. Journal of Negro Education, 1971, 40, 17-21.

Counts, G. S. The social status of occupations: A problem in vocational guidance. School Review, 1925, 33, 16-27.

Crites, J. O. A model for the measurement of vocational maturity. Journal of Counseling Psychology, 1961, 8, 225-259.

Crites, J. O. Vocational psychology. New York: McGraw-Hill, 1969.

Crites, J. O. Administration and use manual for the Career Maturity Inventory. Monterey, California: CTB/McGraw-Hill, 1973. (a)

Crites, J. O. Career Maturity Inventory: Attitude scale. Monterey, California: CTB/McGraw-Hill,. 1973. (b)

Crites, J. O. A comprehensive model of career development in early adulthood. Journal of Vocational Behavior, 1976, 9, 105-118.

Crites, J. O. Career counseling: A comprehensive approach. In J. M. Whiteley & A. Resnikoff (Eds.), Career counseling. Monterey, California: Brooks/Cole, 1978. (a)

Crites, J. O. Career counseling: A review of major approaches. In J. M. Whiteley & A. Resnikoff (Eds.), Career counseling, Monterey, California: Brooks/Cole, 1978 . (b)

Davis, K., & Moore, W. E. Some principles of stratification. American Sociological Review, 1945, 10, 242-249.

Doeringer, P. B., & Piore, M. J. Internal labor markets and manpower analysis. Lexington, Massachusetts: Heath Lexington Books, 1971.

Dolliver, R. H. Strong Vocational Interest Blank versus expressed vocational interests: A review. Psychological Bulletin, 1969, 72, 95-107.

Dolliver, R. H., Irvin, J. A., & Bigley, S. S. Twelve-year follow-up of the Strong Vocational Interest Blank. Journal of Counseling Psychology, 1972, 19, 212-217.

Dolliver, R. H., & Will, J. A. Ten-year follow-up of the Tyler Vocational Card Sort and the Strong Vocational Interest Blank. Journal of Vocational Behavior, 1977, 24, 48-54.

Doughtie, E. B., Chang, W. C., Alston, H. L., Wakefield, J. A., & Yom, B. L. Black-white differences on the Vocational Preference Inventory. Journal of Vocational Behavior, 1976, 8, 41-44.

Duncan, G. J. Earnings functions and nonpecuniary benefits. Journal of Human Resources, 1976, 11, 462-483.

Duncan, O. D. A socioeconomic index for all occupations. Occupations and social status. New York: The Free Press, 1961.

Duncan, O. D. Inheritance of poverty or inheritance of race? In D. P. Moynihan (Ed.), On understanding poverty. New York: Basic Books, 1969.

Duncan, O. D., Featherman, D. L., & Duncan, B. Socioeconomic background and achievement. New York: Seminar Press, 1972.

Durkheim, Emile. The division of labor in society. New York: Free Press, (1893) 1964.

Edwards, A. M. Classification of occupations. Journal of the American Statistical Association, 1911, 12, 618-646.

Edwards, A. M. Social-economic groups of the United States. Journal of the American Statistical Association, 1917, 15, 643-661.

Edwards, A. M. A social economic grouping of the gainful workers of the United States. Journal of the American Statistical Association, 1933, 28, 377-387.

Edwards, A. M. Comparative occupational statistics for the United States, 1870-1940. Washington, D.C.: U.S. Government Printing Office, 1943.

Edwards, R., Reich, M., & Gordon, G. Labor market segmentation. Lexington, Massachusetts: Heath, 1975.

Empey, L. T. Social class and occupational aspiration: A comparison of absolute and relative measurement. American Sociological Review, 1956, 21, 703-709.

Featherman, D. Achievement orientations and socioeconomic career attainments. American Sociological Review, 1972, 37, 131-143.

Featherman, D. L., & Hauser, R. M. Changes in the socioeconomic stratification of the races, 1962-73. American Journal of Sociology, 1976, 82, 621-651.

Fromm, E. Man for himself. New York: Rinehart, 1947.

Ginzberg, E., Ginsberg, S. W., Alexrad, S., & Herma, J. L. Occupational choice. New York: Columbia University Press, 1951.

Gordon, D. M. Theories of poverty and underemployment. Lexington, Massachusetts: Heath, 1972.

Gordon, J. Counseling the disadvantaged boy. In W. E. Amos & J. D. Grambs (Eds.), Counseling the disadvantaged youth. Englewood Cliffs, New Jersey: Prentice-Hall, 1968.

Gordon, L. V. The measurement of interpersonal values. Chicago: Science Research Associates, 1975.

Gottfredson, G. D. Career stability and redirection in adulthood. Journal of Applied Psychology, 1977, 62, 436-445.

Gottfredson, D. G., & Daiger, D. C. Using a classification of occupations to describe age, sex, and time differences in employment patterns. Journal of Vocational Behavior, 1977, 10, 121-138.

Gottfredson, G. D., & Holland, J. L. Vocational choices of men and women: A comparison of predictors from the Self-Directed Search. Journal of Counseling Psychology, 1975, 22, 132-139.

Gottfredson, G. D., Holland, J. L., & Gottfredson, L. S. The relation of vocational aspirations and assessments to employment reality. Journal of Behavior, 1975, 7, 135-148.

Gottfredson, L. S. A multiple-labor market model of occupational achievement (Report No. 225). Baltimore, Maryland: The Johns Hopkins University, Center for Social Organization of Schools, 1977. (ERIC Document Reproduction Service No. 142 809)

Gottfredson, L. S. An analytical description of employment according to race, sex, prestige, and Holland type of work. _Journal of Vocational Behavior_, 1978, _13_, 210-221. (a)

Gottfredson, L. S. Providing black youth more access to enterprising work. _Vocational Guidance Quarterly_, 1978, _27_, 114-123. (b)

Gottfredson, L. S. _Race and sex differences in occupational aspirations: Their development and consequences for occupational segregation_ (Report No. 254). Baltimore, Maryland: The Johns Hopkins University, Center for Social Organization of Schools, 1978. (ERIC Document Reproduction Service No. WE 005 517) (c)

Gottfredson, L. S. The construct validity of Holland's occupational classification in terms of prestige, census, Department of Labor and other classification systems. _Journal of Applied Psychology_, in press.

Gottfredson, L. S. _How valid are occupational reinforcer pattern scores?_ (Report No. 29[illegible]). Baltimore, Maryland: The Johns Hopkins University, Center for Social Organization of Schools, 1980.

Gottfredson, L. S., & Brown, V. C. Holland codes for the 1960 and 1970 censuses: Detailed occupational titles. JSAS _Catalog of Selected Documents in Psychology_, 1978, _8_, 22. (Ms. No. 1660)

Gottlieb, D. Goal aspirations and social fulfillment: Differences between deprived and affluent American adolescents. _American Journal of Orthopsychiatry_, 1964, _34_, 934-941.

Grasso, J. T. The formation and revision of goals by young men. In I. Kohen, J. T. Grasso, S. C. Myers, & P. M. Shields (Eds.), _Career thresholds: A longitudinal study of the educational and labor market experience of young men_, Vol. 6. (U.S. Department of Labor Research Monograph No. 16). Washington, D.C.: U.S. Government Printing Office, 1977.

Career Thresholds: A longitudinal study of the educational and labor market experience of male youth, Vol. 4. (U.S. Department of Labor Research Monograph No. 16). Washington, D.C.: U.S. Government Printing Office, 1974.

Hertel, B. R. Minimizing error variance introduced by missing data routines in survey analysis. Sociological Methods and Research, 1976, 4, 459-475.

Hodge, R. W., & Hodge, P. Occupational assimilation as a competitive process. American Journal of Sociology, 1965, 71, 249-264.

Hodge, R. W., Siegel, P. M., & Rossi, P. H. Occupational prestige in the United States: 1925-1963. In R. Bendix & S. M. Lipset (Eds.), Class, status and power. New York: Free Press, 1966.

Hodge, R. W., Treiman, D. J., & Rossi, P. H. A comparative study of occupational prestige. In R. Bendix & S. M. Lipset (Eds.), Class, status and power. New York: Free Press, 1966.

Hogan, D. P. Situs and status dimensions of occupational stratification: An examination of interindustry and interoccupational mobility. In R. M. Hauser & D. L. Featherman (Eds.), The process of stratification: Trends and analysis. New York: Academic Press, 1977.

Hogan, D.P., & Featherman, D. L. Racial stratification and socioeconomic change in the American North and South. American Journal of Sociology, 1977, 83, 100-126.

Holcomb, W. R., & Anderson, W. P. Vocational guidance research: A five-year overview. Journal of Vocational Behavior, 1977, 10, 341-346.

Holland, J. L. Some explorations of a theory of vocational choice: I. One- and two-year longitudinal studies. Psychological Monographs, 1962, 76 (26, Whole No. 545).

Guilford, J. P., Christensen, P. R., Bond, N. A., & Sutton, M. A. A factor analysis study of human interests. Psychological Monographs, 1954, 68 (4, Whole No. 375).

Gusfield, J. R., & Schwartz, M. The meaning of occupational prestige: A reconsideration of the NORC scale. American Sociological Review, 1963, 28, 265-271.

Hager, P. C., & Elton, C. F. The vocational interests of black males. Journal of Vocational Behavior, 1971, 1, 153-158.

Hall, D. T. Careers in organizations. Pacific Palisades, California: Goodyear, 1976.

Haller, A. O., & Portes, A. Status attainment processes. Sociology of Education, 1973, 46, 51-91.

Han, W. S. Two conflicting themes: Common values vs. class differential values. American Sociological Review, 1969, 34, 679-690.

Harmon, L. W. Problems in measuring vocational maturity: A counseling perspective. In D. W. Super (Ed.), Measuring vocational maturity for counseling and evaluation. Washington, D.C.: American Personnel and Guidance Association, 1974.

Hatt, P. K. Occupation and social stratification. American Journal of Sociology, 1950, 55, 533-543.

Hauser, R. M., & Featherman, D. L. Equality of schooling: Trends and prospects. Sociology of Education, 1976, 49, 99-120.

Hauser, R. M., & Featherman, D. L. The process of stratification: Trends and analyses. New York: Academic Press, 1977.

Herriott, R. E., & Kohen, A. I. On the pooling of mental ability measures from different tests: A pragmatic approach. In A. I. Kohen (Ed.), Holland, J. L. The psychology of vocational choice: A theory of personality types and model environments. Waltham, Massachusetts: Blaisdell, 1966.

Holland, J. L. Explorations of a theory of vocational choice: Longitudinal study using a sample of typical college students. Journal of Applied Psychology Monograph, 1968, 52 (1, Pt. 2).

Holland, J. L. Making vocational choices: A theory of careers. Englewood Cliffs, New Jersey: Prentice-Hall, 1973.

Holland, J. L. Manual for the Vocational Preference Inventory. Palo Alto, California: Consulting Psychologists Press, 1975.

Holland, J. L. The occupations finder. Palo Alto, California: Consulting Psychologists Press, 1977.

Holland, J. L. The Self-Directed Search: Professional manual. Palo Alto, California: Counseling Psychologists Press, 1979.

Holland, J. L., & Gottfredson, G. D. Using a typology of persons and environments to explain careers: Some extensions and clarifications. The Counseling Psychologist, 1976, 6, 20-29.

Holland, J. L., Gottfredson, G. D., & Holland, J. E. Selected references for papers. Prepared for the APGA convention, Dallas, Texas, March, 1977.

Holland, J. L., Magoon, T. M., & Spokane, A. R. Counseling psychology: Career interventions, research and theory. Annual Review of Psychology, in press.

Holland, J. L., & Nafziger, D. H. A note on the validity of the Self-Directed Search. Measurement and Evaluation in Guidance, 1975, 7, 259-262.

Holland, J. L., Viernstein, M. C., Kuo, H., Karweit, N. L., & Blum, Z. D. A psychological classification of occupations. JSAS *Catalog of Selected Documents in Psychology*, 1972, *2*, 84.

Horan, P. M. The structure of occupational mobility: Conceptualization and analysis. *Social Forces*, 1974, *53*, 33-45.

Hunt, W. C. Workers at gainful occupations at the federal censuses of 1870, 1880, and 1890. *Bulletin 11*, Washington, D.C.: Department of Labor, 1897.

Jencks, C., & Bartlett, S. *Who gets ahead: The determinants of economic success in America*. New York: Basic Books, 1979.

Joordaan, J. P. Life stages as organizing modes of career development. In E. L. Herr (Ed.), *Vocational guidance and human development*. Boston: Houghton Mifflin, 1974.

Jung, C. G. *Psychological types*. New York: Harcourt, Brace, 1933.

Jurgensen, C. E. Job preferences (What makes a job good or bad?). *Journal of Applied Psychology*, 1978, *63*, 267-276.

Kahl, J. A. Educational and occupational aspirations of "common man" boys. *Harvard Educational Review*, 1953, *23*, 186-203.

Kalleberg, A., & Griffin, L. J. Class, occupation, and inequality in job rewards. *American Journal of Sociology*, 1980, *85*, 731-768.

Kalleberg, A., & Sorenson, A. B. Sociology of labor markets. *Annual Review of Sociology*, 1979, *5*, 351-379.

Kelso, G. I. *Explorations of the developmental antecedents of Holland's occupational types*. Unpublished doctoral dissertation, Baltimore: Maryland: The Johns Hopkins University, 1976.

Kelso, G. I., Holland, J. L., & Gottfredson, G. D. The relation of self-reported competencies to aptitude test scores. Journal of Vocational Behavior, 1977, 10, 99-102.

Kerckhoff, A. C. Ambition and attainment. A study of four samples of American boys. The Arnold and Caroline Rose Monograph Series in Sociology. Washington, D.C.: American Sociological Association, 1974.

Kerckhoff, A. C., & Campbell, R. T. Race and social status differences in the explanation of educational ambition. Social Forces, 1977, 55, 701-714.

Kerr, C. The balkanization of labor markets. In E. W. Bakke, P. M. Hauser, G. L. Palmer, C. A. Myers, D. Yoder, & C. Kerr (Eds.), Labor mobility and economic opportunity. New York: Wiley, 1954.

Kimball, R. I., Sedlacek, W. E., & Brooks, G. C., Jr. Black and white vocational interests in Holland's Self-Directed Search (SDS). Journal of Negro Education, 1973, 42, 1-4.

Klatsky, S. R., & Hodge, R. W. A canonical correlation analysis of occupational mobility. Journal of the American Statistical Association, 1971, 66, 16-22.

Kohen, A. I., Grasso, J. T., Myers, S. C., & Shields, P. M. (Eds.). Career thresholds: A longitudinal study of the educational and labor market experience of young men, Vol. 6, (U.S. Department of Labor Research Monograph No. 16). Washington, D.C.: U.S. Government Printing Office, 1977.

Kohen, A. I., & Shields, P. M., Determinants and consequences of service in the armed forces during the Vietnam era. In A. I. Kohen, J. T. Grasso, S. C. Myers, & P. M. Shields (Eds.), Career thresholds: A longitudinal study of the educational and labor market experience of young men, Vol. 6. (U.S. Department of Labor Research Monograph No. 16). Washington, D.C.: U.S. Government Printing Office, 1977.

Kohn, M. Class and conformity: A study in values. Homewood, Illinois: Dorsey Press, 1969.

Krumboltz, J. D., Mitchell, A. M., & Jones, G. B. A social learning theory of career selection. In J. M. Whiteley & A Resnikoff (Eds.), Career counseling. Monterey, California: Brooks/Cole, 1978.

Kuvlesky, W. P., Wright, D. E., & Juarez, R. Z. Status projections and ethnicity: A comparison of Mexican-American, Negro, and Anglo youth. Journal of Vocational Behavior, 1971, 1, 137-151.

Lackey, A. An annotated bibliography for Holland's theory, the Self-Directed Search, and the Vocational Preference Inventory (1972-1975). JSAS Catalog of Selected Documents in Psychology, 1975, 5, 352. (Ms. No. 1149)

Levinson, D. J., Darrow, C. M., Klein, E. B., Levinson, M., & McKee, B. The psychosocial development of men in early adulthood and the mid-life transition. In D. F. Ricks, A. Thomas & M. Roff (Eds.), Life history research in psychopathology, Vol. 3. Minneapolis: University of Minnesota Press, 1974.

Lipset, S., & Bendix, R. Social mobility in industrial societies. Berkeley: University of California Press, 1959.

LoCascio, R. The vocational maturity of diverse groups: Theory and measurement. Measuring vocational maturity for counseling and evaluation. Washington, D.C.: American Personnel and Guidance Association, 1974.

Lofquist, L. H., & Dawis, R. V. Adjustment to work. New York: Appleton-Century-Crofts, 1969.

Lucy, W. T. The stability of Holland's personality types over time. Journal of College Student Personnel, 1976, 17, 76-79.

McCormick, E.J., Jeanneret, P. R., & Mecham, R. C. A study of job characteristics and job dimensions as based on the Position Analysis Questionnaire (PAQ). Journal of Applied Psychology, 1972, 56, 347-368. (Monograph)

McLaughlin, D. H., & Tiedeman, D. V. Eleven year career stability and change as reflected in Project Talent data through the Flanagan, Holland and Roe occupational classification systems. Journal of Vocational Behavior, 1974, 5, 177-196.

Mincer, J. Schooling, experience and earnings. New York: Columbia University Press, 1974.

Montagne, P. Labor market segmentation. A didactic seminar presented at the annual meeting of the American Sociological Association, Boston, August, 1979.

Morris, R. T., & Murphy, R. J. The situs dimension in occupational structure. American Sociological Review, 1959, 24, 231-239.

Nafziger, D. H., & Helms, S. T. Cluster analyses of the SVIB, MVII, and Kudor OIS as tests of an occupational classification. (Report No. 138). Baltimore, Maryland: The Johns Hopkins University, Center for Social Organization of Schools, 1972. (ERIC Document Reproduction Service No. 070 873)

Nafziger, D. H., Holland, J. L., Helms, S. T., & McPartland, J. M. Applying an occupational classification to a national representative sample of work histories of young men and women. (Report No. 132). Baltimore, Maryland: The Johns Hopkins Center for Social Organization of Schools, 1972. (ERIC Document Reproduction Service No. 065 675)

Osipow, S. H. Some revised questions for vocational psychology. Counseling Psychologist, 1969, 1, 17-19.

Osipow, S. H. Theories of career development (2nd ed.). New York: Appleton-Century-Crofts, 1973.

Osterman, P. An empirical study of labor market segmentation. Industrial and Labor Relations Review, 1975, 28, 508-521.

Overall, J. E. & Klett, C. J. Applied multivariate analysis. New York: McGraw-Hill, 1972.

Parnes, H. S., Miljus, R. C., Spitz, R. A., & Associates. Career thresholds: A longitudinal study of the educational and labor market experiences of male youth, Vol. 1. (U.S. Department of Labor Monograph, No. 16). Washington, D.C.: U.S. Government Printing Office, 1970.

Parsons, F. Choosing a vocation. Boston: Houghton Mifflin, 1909.

Reiss, A. J., Jr. Occupations and social status. New York: Free Press, 1961.

Roberts, K. The entry into employment: An approach towards a general theory. Sociological Review, 1968, 16, 175-184.

Rodman, H. The lower-class value stretch. Social Forces, 1963, 42, 205-215.

Rodman, H., & Voydanoff, P. Social class and parents' range of aspirations for their children. Social Problems, 1978, 25, 333-344.

Roe, A. The psychology of occupations. New York: Wiley, 1956.

Roe, A., & Klos, D. Occupational classification. The Counseling Psychologist, 1969, 1, 84-92.

Rosen, B. C. Race, ethnicity, and the achievement syndrome. American Sociological Review, 1959, 24, 47-60.

Rosen, S. D., Hendel, D. D., Weiss, D. J., Dawis, R. V., & Lofquist, L. H. Occupational reinforcer patterns: II. Minneapolis, Minnesota: Vocational Psychology Research, Department of Psychology, University of Minnesota, 1972.

Rounds, J. B., Jr., Shubsachs, A. P. W., Dawis, R. V., & Lofquist, L. H. A test of Holland's environment formulations. Journal of Applied Psychology, 1978, 63, 609-616.

Schumpter, J. Imperialism, Social Classes. New York: Meridan, 1951.

Scoville, J. The development and relevance of U.S. occupational data. Industrial and Labor Relations Review, 1965-1966, 19, 70-79.

Sewell, W. H., & Haller, A. O. Educational and occupational perspectives of farm and rural youths. In L. G. Burchinal (Ed.), Rural youth in crisis. Washington, D.C.: U.S. Government Printing Office, 1965.

Sewell, W. H., Haller, A. O., & Straus, M. A. Social status and educational and occupational aspiration. American Sociological Review, 1957, 22, 67-73.

Sewell, W. H., & Hauser, R. M. Education, occupation, and earnings. New York: Academic Press, 1975.

Sewell, W. H., & Hauser, R. M. Causes and consequences of higher education: Models of the status attainment process. In W. H. Sewell, R. M. Hauser, & D. L. Featherman (Eds.), Schooling and achievement in American society. New York: Academic Press, 1976.

Sewell, W. H., Hauser, R. M., & Featherman, D. L. Schooling and achievement in American society. New York: Academic Press, 1976.

Sewell, W. H., & Shah, V. P. Parents' education and children's educational aspirations and achievements. American Sociological Review, 1968, 33, 191-209. (a)

Sewell, W. H. & Shah, V. P. Social class, parental encouragement and educational aspirations. American Journal of Sociology, 1968, 73, 559-572. (b)

Sheldon, W. H. Atlas of men: A guide for somatotyping the adult male at all ages. New York: Harper, 1954.

Siegel, P. M. Prestige in the American occupational structure. Unpublished doctoral dissertation, Chicago, Illinois: University of Chicago, 1971.

Simpson, R. L. & Simpson, I. H. Correlates and estimation of occupational prestige. American Journal of Sociology, 1960, 66, 135-140.

Sorensen, A. B. The structure of inequality and the process of attainment. American Sociological Review, 1977, 42, 965-986.

Sorokin, P. A. Social and cultural mobility. New York: The Free Press, 1959.

Spilerman, S. Careers, labor market structure, and socioeconomic achievement. American Journal of Sociology, 1977, 83, 551-593.

Spranger, E. [Types of men.] Translated from the 5th German edition of Lebensformen. Halle: Max Niemeyer Verlag, 1928.

Stephenson, R. M. Mobility orientation and stratification of 1,000 ninth graders. American Sociological Review, 1957, 22, 204-212.

Strong, E. K., Jr. Vocational interests of men and women. Stanford, California: Stanford University Press, 1943.

Super, D. E. The psychology of careers. New York: Harper & Row, 1957.

Super, D. E. Vocational development in adolescence and early adulthood: Tasks and behaviors. In D. E. Super, et al., Career development: Self-concept theory. New York: CEEB Research Monograph No. 4, 1963.

Super, D. E. A theory of vocational development. In D. G. Zytowski (Ed.), Vocational behavior: Readings in theory and research. New York: Holt, Rinehart, and Winston, 1968.

Super, D. E. Measuring vocational maturity for counseling and evaluation. Washington, D.C.: American Personnel and Guidance Association, 1974.

Super, D. E., & Hall, D. T. Career development: Explorations in planning. Annual Review of Psychology, 1978, 29, 333-372.

Temme, L. V. Occupation: Meanings and measures. Washington, D.C.: Bureau of Social Science Research, 1975.

Thomas, G. E. , Alexander, K. L., & Eckland, B. K. Access to higher education: The importance of race, sex, social class,and academic credentials. School Review, 1979, 87, 133-156.

Tiedeman, D. B., Katz, M. R., Miller-Tiedeman, A., & Osipow, S. The cross-sectional story of early career development as revealed by the National Assessment of Educational Progress. Washington, D.C.: U.S. Government Printing Office, 1977.

Tittle, C. K., & Zytowski, D. G. Sex-fair interest measurement: Research and implications. Washington, D.C.: National Institute of Education, 1978.

Toenjes, C. M., & Borgen, F. H. Validity generalization of Holland's hexagonal model. Measurement and Evaluation in Guidance, 1974, 7, 79-85.

Treiman, D. J. Occupational prestige in comparative perspective. New York: Academic Press, 1977.

Treiman, D. J., & Terrell, K. Sex and the process of status attainment: A comparison of working women and men. *American Sociological Review*, 1975, *40*, 174-200.

Trow, W. C. Phantasy and vocational choice. *Occupations*, 1941, *20*, 89-93.

U.S. Bureau of the Census. *Classified index of industries and occupations*. Washington, D.C.: U.S. Government Printing Office, 1971.

U.S. Bureau of the Census. *Census of population: 1970 subject reports. Final report PC(2)-7A occupational characteristics*. Washington, D. C.: U.S. Government Printing Office, 1973.

U.S. Bureau of Labor Statistics. *Occupational outlook handbook*, 1976-77 ed, Washington, D.C.: Government Printing Office, 1976.

U.S. Department of Labor. *Employment and training report of the President*. Washington, D.C.: Government Printing Office, 1979.

U.S. Department of Labor, Manpower Administration. *Dictionary of occupational titles*. Washington, D.C.: U.S. Government Printing Office, 1965.

Vetter, L. Reactions to Crites' review of the major approaches to career counseling. In J.M. Whiteley & A. Resnikoff (Eds.), *Career counseling*. Monterey, California: Brooks/Cole, 1978.

Viernstein, M. C. The extension of Holland's occupational classification to all occupations in the Dictionary of Occupational Titles. *Journal of Vocational Behavior*, 1972, *2*. 107-121.

Wakefield, A. A., Jr., & Cunningham, C. H. Relationships between the Vocational Preference Inventory and the Edwards Preference Schedule. *Journal of Vocational Behavior*, 1975, *6*, 373-377.

Walsh, W. B. *Theories of person-environment interaction: Implications for the college student*. Iowa City, Iowa: American College Testing Program, 1973.

Walsh, W. B. Vocational behavior and career development, 1978: A review. Journal of Vocational Behavior, 1979, 15, 119-154.

Warnath, C. F. Vocational theories: Direction to nowhere. Personnel and Guidance Journal, 1974, 53, 422-428.

Weber, M. [Economy and Society] (G. Roth & C. Wittich, Ed. and trans.). New York: Bedminster Press, 1968.

Wegmann, R. G. Job-search assistance: A review. Journal of Employment Counseling, 1979, 16, 197-228.

Weinrach, S. G. Have hexagon will travel: An interview with John Holland. Personnel and Guidance Journal, 1980, 58, 406-414.

Westbrook, F. D. High scales on the Strong Vocational Interest Bank and the Kuder Occupational Interest Survey using Holland's occupational codes. Journal of Counseling Psychology, 1975, 22, 24-27.

Westbrook, F. D., & Molla, B. Unique stereotypes for Holland's personality types, testing the traits attributed to men and women in Holland's typology. Journal of Vocational Behavior, 1976, 9, 21-30.

Whitney, D. R. Predicting from expressed vocational choice: A review. Personnel and Guidance Journal, 1969, 48, 279-286.

Williamson, E. G. Vocational counseling. New York: McGraw-Hill, 1964.

Wilson, A. B. Residential segregation of social classes and aspirations of high school boys. American Sociological Review, 1959, 24, 836-845.

Wilson, W. J. The declining significance of race: Blacks and changing American institutions. Chicago: University of Chicago Press, 1978.

Winsborough, H. H. Age, period, cohort, and education effects on earnings by race (Reprint 172). Madison, Wisconsin: The University of Wisconsin, Institute on Poverty, 1975.

Worthington, E. L., Jr., & Dolliver, R. H. Validity studies of the Strong Vocational Interest Inventories. Journal of Counseling Psychology, 1977, 24, 208-216.

Wright, C. D. Outline of practical sociology. New York: Longmans, Gleen & Co., 1899.

Wright, E. O., & Perrone, L. Marxist class categories and income inequality. American Sociological Review, 1977, 42, 32-55.

Wright, E. O. Class, occupation and organization. Paper presented at the annual meeting of the American Sociological Association, San Francisco, September, 1978. (a)

Wright, E. O. Race, class, and income inequality. American Journal of Sociology, 1978, 83, 1368-97. (b)

Zytowski, D. G. Predictive validity of the Kuder Preference Record, Form B, over a 25-year span. Measurement and Evaluation in Guidance, 1974, 7, 122-129.

Appendix A

DUNCAN STATUS SCORES AND FIRST-LETTER HOLLAND FIELD CODES USED IN THIS VOLUME TO CLASSIFY OCCUPATIONS

The Ohio Center for Human Resource Research provided Duncan scores for each of the detailed occupational titles used with the NLS data. Major Holland codes were also assigned to these occupational titles as described in Chapter 4. This appendix lists all occupational titles according to the 18 status-field groups described in Chapter 4 and which were used throughout this volume.

Duncan scores are not provided in this appendix for all titles because Duncan codes for some occupational titles vary according to the industry in which they are found. In these cases, occupational titles have been listed under the status-field group in which they are found. The codes by industry for these titles can be found in Attachment 2 of the tape documentation for the NLS data.

1960 Census Code	Occupational Title	Duncan Score
R High	Occupations -- Duncan scores 60+	
074	Draftsmen	67
085	Engineers, mechanical	82
091	Engineers, mining	85
164	Radio operators	69
192	Technicians, n.e.c.	62
R Mod	occupations -- Duncan scores 30-59	
103	Foresters and conservationists	48
181	Surveyors	48
252	Conductors, railroad	58
265	Officers, pilots, pursers, and engineers, ship	54
313	Collectors, bill and account	39
323	Mail carriers	53
350	Stock clerks and storekeepers	44
403	Boilermakers	33
404	Bookbinders	39
414	Compositors and typesetters	52
421	Electricians	44
423	Electrotypers and stereotypers	55
424	Engravers, except photoengravers	47
430	Foremen, n.e.c.	mod
450	Inspectors, n.e.c.	mod
451	Jewelers, matchmakers, goldsmiths, and silversmiths	36
453	Linemen and servicemen, telegraph, telephone and power	49
454	Locomotive engineers	58
460	Locomotive firemen	45
465	Machinists	33
471	Mechanics and repairmen, airplane	48
473	Mechanics and repairmen, office machine	36
474	Mechanics and repairmen, radio and television	36
491	Millwrights	31
493	Motion picture projectionists	43
494	Opticians, and lens grinders and polishers	39

R Mod Occupations -- continued

504	Piano and organ tuners and repairmen	38
510	Plumbers and pipe fitters	34
512	Pressmen and plate printers, printing	49
520	Stationary engineers	47
523	Structural metal workers	34
525	Tinsmiths, coppersmiths, and sheet metal workers	33
530	Toolmakers, and die makers and setters	50
545	Craftsmen and kindred workers, n.e.c.	32
602	Apprentice bricklayers and masons	32
603	Apprentice carpenters	31
604	Apprentice electricians	37
605	Apprentice machinists, and toolmakers	41
610	Apprentice mechanics, except auto	34
612	Apprentice plumbers and pipe fitters	33
614	Apprentices, metalworking trades,n.e.c.	33
615	Apprentices, printing trade	40
620	Apprentices, other specified trades	31
621	Apprentices, trade not specified	39
630	Asbestos and insulation workers	32
640	Brakemen, railroad	42
645	Conductors, bus and street railway	30
680	Milliners	46
691	Motormen, street, subway, and elevated railway	34
695	Photographic process workers	42
701	Power station operators	50
713	Switchmen, railroad	44
850	Firemen, fire protection	37

R Low occupations -- Duncan scores 0-29

200	Farmers (owners and tenants)	14
304	Baggagemen, transportation	25

R Low occupations -- continued

343	Shipping and receiving clerks	22
401	Bakers	22
402	Blacksmiths	16
405	Brickmasons, stonemasons and tile setters	27
410	Cabinetmakers	23
411	Carpenters	19
413	Cement and concrete finishers	19
415	Cranemen, derrickmen, and hoistmen	21
425	Excavating, grading, and road machinery operators	24
431	Forgemen and hammermen	23
434	Glaziers	26
435	Heat treaters, annealers, and temperers	22
444	Inspectors, scalers, and graders, log and lumber	23
452	Job setters, metal	28
461	Loom fixers	10
470	Mechanics and repairmen, air conditioning, heating, and refrigeration	27
472	Mechanics and repairmen, automobile	19
475	Mechanics and repairmen, railroad and car shop	23
480	Mechanics and repairmen, n.e.c.	27
490	Millers, grain, flour, feed, etc.	19
492	Molders, metal	12
495	Painters, construction and maintenance	16
501	Paperhangers	10
505	Plasterers	25
513	Rollers and roll hands, metal	22
514	Roofers and slaters	15
515	Shoemakers and repairers, except factory	12
521	Stone cutters and stone carvers	25
524	Tailors and tailoresses	23
535	Upholsterers	22
601	Apprentice auto mechanics	25
613	Apprentices, building trades	29
631	Assemblers	17

R Low occupations -- continued

632	Attendants, auto service and parking	19
634	Blasters and powdermen	11
635	Boatmen, canalmen, and lock keepers	24
641	Bus drivers	24
642	Chainmen, rodmen, and axmen, surveying	25
643	Checkers, examiners, and inspectors, manufacturing	17
651	Dressmakers and seamstresses, except factory	23
652	Dyers	12
653	Filers, grinders, and polishers, metal	22
654	Fruit, nut, and vegetable graders and packers, except factory	10
670	Furnacemen, smeltermen, and pourers	18
671	Graders and sorters, manufacturing	17
672	Heaters, metal	29
673	Knitters, loopers, and toppers, textile	21
674	Laundry and dry cleaning operatives	15
675	Meat cutters, except slaughter and packing house	29
685	Mine operatives and laborers, n.e.c.	Lo
690	Motormen, mine, factory, logging camp, etc.	03
692	Oilers and greasers, except auto	15
693	Packers and wrappers, n.e.c.	18
694	Painters, except construction	18
703	Sailors and deck hands	16
704	Sawyers	05
710	Spinners, textile	05
712	Stationary firemen	17
714	Taxicab drivers and chauffeurs	10
715	Truck and tractor drivers	15
720	Weavers, textile	06
721	Welders and flame-cutters	24
775	Operatives and kindred workers, n.e.c.	Lo

R Low occupations -- continued

803	Laundresses, private household	12
804	Private household workers, n.e.c.	07
813	Attendants, recreation and amusement	19
814	Barbers	17
820	Bootblacks	08
823	Chambermaids and maids, except private household	11
824	Charwomen and cleaners	10
825	Cooks, except private household	15
830	Counter and fountain workers	17
831	Elevator operators	10
834	Janitors and sextons	09
835	Kitchen workers, n.e.c., except private household	11
841	Porters	04
851	Guards, watchmen, doorkeepers	18
860	Watchmen (crossing) and bridge tenders	17
874	Ushers, recreation and amusement	25
875	Waiters and waitresses	16
890	Service workers, except private household, n.e.c.	11
901	Farm foremen	20
902	Farm laborers, wage workers	06
903	Farm laborers, unpaid family	17
905	Farm service laborers, self-employed	22
960	Carpenters' helpers, except logging and mining	07
962	Fishermen and oystermen	10
963	Garage laborers, and car washers and greasers	08
964	Gardeners, except farm, and groundskeepers	11
965	Longshoremen and stevedores	11
970	Lumbermen, raftsmen, and woodchoppers	04
971	Teamsters	08
972	Truck drivers' helpers	09
973	Warehousemen, n.e.c.	08
985	Laborers, n.e.c.	Lo

I High occupations -- Duncan scores 60+

012	Airplane pilots and navigators	79
021	Chemists	79
022	Chiropractors	75
031	Professors and Instructors, Agricultural sciences	84
032	Professors and Instructors, Biological sciences	84
034	Professors and Instructors, Chemistry	84
035	Professors and Instructors, Economics	84
040	Professors and Instructors, Engineering	84
041	Professors and Instructors, Geology and geophysics	84
042	Professors and Instructors, Mathematics	84
043	Professors and Instructors, Medical sciences	84
045	Professors and Instructors, Physics	84
051	Professors and Instructors, Statistics	84
052	Professors and Instructors, Natural sciences, n.e.c.	84
071	Dentists	96
080	Engineers, aeronautical	87
081	Engineers, chemical	90
082	Engineers, civil	84
083	Engineers, electrical	84
090	Engineers, metallurgical and metallurgists	82
093	Engineers, n.e.c.	87
130	Agricultural scientists	80
131	Biological scientists	80
134	Geologists and geophysicists	80
135	Mathematicians	80
140	Physicists	80
145	Miscellaneous natural scientists	80
152	Optometrists	79
153	Osteopaths	96
160	Pharmacists	82
162	Physicians and surgeons	92
172	Economists	81
174	Statisticians and actuaries	81
190	Technicians, electrical and electronic	62

I High occupations -- continued

191	Technicians, other engineering and physical sciences	62
194	Veterinarians	78
195	Professional, technical, and kindred workers, n.e.c.	65

I Mod occupations -- Duncan scores 30-59

185	Technicians, medical and dental	48
502	Pattern and model makers, except paper	44

I Low -- Duncan scores 0-29

None

A High occupations -- Duncan scores 60+

010	Actors and actresses	60
013	Architects	90
014	Artists and art teachers	67
020	Authors	76
072	Designers	73
075	Editors and reporters	82
163	Public relations men and publicity writers	82
380	Advertising agents and salesmen	66
503	Photoengravers and lithographers	64

A Mod occupations -- Duncan scores 30-59

070	Dancers and dancing teachers	45
101	Entertainers, n.e.c.	31
120	Musicians and music teachers	52
161	Photograhers	50
420	Decorators and window dressers	40
432	Furriers	39

A Low occupations -- Duncan scores 0-29

None

S High occupations -- Duncan scores 60+

050	Professors and Instructors, Psychology	84
053	Professors and Instructors, Social Sciences, n.e.c.	84
054	Professors and Instructors, Nonscientific subjects	84
060	Professors and Instructors, Subject not specified	84
102	Farm and home management advisors	83
111	Librarians	60
165	Recreation and group workers	67
171	Social and welfare workers	64
173	Psychologists	81
175	Miscellaneous social scientists	81
180	Sports instructors and officials	64
182	Teachers, elementary schools	72
183	Teachers, secondary schools	72
184	Teachers, n.e.c.	72
260	Inspectors, public administration	High
354	Ticket, station and express agents	60

S Mod occupations -- Duncan scores 30-59

015	Athletes	52
023	Clergymen	52
073	Dietitians and nutritionists	39
104	Funeral directors and embalmers	59
150	Nurses, professional	46
151	Nurses, student professional	51
170	Religious workers	56
193	Therapists and healers, n.e.c.	58
260	Inspectors, public Administration	Mod

S Mod occupations -- continued

262	Managers and superintendents, building	32
275	Officials, lodge, society, union, etc.	58
303	Attendants, physician's and dentist's office	38
832	Housekeepers and stewards, except private household	31
840	Midwives	37
853	Policemen and detectives	Mod
854	Sheriffs and bailiffs	34

S Low occupations -- Duncan scores 0-29

801	Baby sitters, private household	07
802	Housekeepers, private household	19
810	Attendants, hospital and other institutions	13
812	Attendants, professional and personal service, n.e.c.	26
815	Bartenders	19
842	Practical nurses	22
843	Hairdressers and cosmetologists	17
852	Marshals and constables	21

E High occupations -- Duncan scores 60+

084	Engineers, industrial	86
092	Engineers, sales	87
105	Lawyers and judges	93
154	Personnel and labor relations workers	84
250	Buyers and department heads, store	72
270	Officials and administrators, n.e.c. public administration	High
280	Postmasters	60
285	Purchasing agents and buyers, n.e.c.	77
290	Managers, officials, and proprietors, n.e.c.	High
301	Agents, n.e.c.	68
321	Insurance adjusters, examiners, and investigators	62

E High occupations -- continued

385	Insurance agents, brokers and underwriters	66
393	Real estate agents and brokers	62
394	Salesmen and sales clerks, n.e.c.	High
395	Stock and bond salesmen	73

E Mod occupations -- Duncan scores 30-59

222	Farm managers	36
251	Buyers and shippers, farm produce	33
254	Floor men and floor managers, store	50
314	Dispatchers and starters, vehicle	40
381	Auctioneers	40
382	Demonstrators	35
394	Salesmen and sales clerks, n.e.c.	Mod
650	Deliverymen and routemen	32
821	Boarding and lodging housekeepers	30

E Low occupations -- Duncan scores 0-29

383	Hucksters and peddlers	08
390	Newsboys	27

C High occupations -- Duncan scores 60+

000	Accountants and auditors	78
253	Creditmen	74
315	Express messengers and railway mail clerks	67
342	Secretaries	61
345	Stenographers	61
360	Typists	61

C Mod occupations -- Duncan scores 30-59

302	Attendants and assistants, library	44
305	Bank tellers	52
310	Bookkeepers	51
312	Cashiers	44
[illegible]20	File clerks	44
3[illegible]5	Office machine operators	45
333	Payroll and timekeeping clerks	44
340	Postal clerks	44
341	Receptionists	44
352	Telegraph operators	47
353	Telephone operators	45
370	Clerical and kindred workers, n.e.c.	44

C Low occupations -- Duncan scores 0-29

324	Messengers and office boys	28
351	Telegraph messengers	22
705	Sewers and stitchers, manufacturing	17

Appendix B

STANDARD ERRORS OF PERCENTAGES

This appendix provides estimates of sampling errors for percentages.* These estimates are provided for weighted numbers of cases. Because this volume reports percentages only for unweighted numbers, Table 5.4 must be used to estimate the weighted numbers. Table 5.4 provides the mean weight for men of different ages and races.

---

*This appendix is taken directly from Parnes et al. (1970, Appendix C).

As in any survey based upon a sample, the data in this report are subject to sampling error, that is, variation attributable solely to the fact that they emerge from a sample rather than from a complete count of the population. Because the probabilities of a given individual's appearing in the sample are known, it is possible to estimate the sampling error, at least roughly. For example, it is possible to specify a "confidence interval" for each absolute figure or percentage, that is, the range within which the true value of the figure is likely to fall. For this purpose, the standard error of the statistic is generally used. One standard error on either side of a given statistic provides the range of values which has a two-thirds probability of including the true value. This probability increases to about 95 percent if a range of two standard errors is used.

Standard Errors of Percentages

In the case of percentages, the size of the standard error depends not only on the magnitude of the percentage, but also on the size of the base on which the percentage is computed. Thus, the standard error of 80 percent may be only 1 percentage point when the base is the total number of white men, but as much as 8 or 9 percentage points when the base is the total number of unemployed white men. Two tables of standard errors, one for whites and one for blacks, are shown below (Tables B-1 and B-2).

The method of ascertaining the appropriate standard error of a percentage[1] may be illustrated by the following example. There are about 5,000,000 white

---

[1] Because the sample is not random, the conventional formula for the standard error of a percentage cannot be used. The entries in the tables have been computed on the basis of a formula suggested by the Bureau of the Census statisticians. They should be interpreted as providing an indication of the order of magnitude of the standard error, rather than a precise standard error for any specific item.

Table B-1 Standard Errors of Estimated Percentages of Whites
(68 chances out of 100)

Base of percentage (thousands)	Estimated percentage				
	1 or 99	5 or 95	10 or 90	20 or 80	50
100	2.8	6.0	8.3	11.1	13.9
200	1.9	4.2	5.8	7.8	9.7
350	1.5	3.2	4.4	5.9	7.3
500	1.2	2.7	3.7	4.9	6.1
1,000	0.9	1.9	2.6	3.5	4.3
5,000	0.4	0.8	1.2	1.5	1.9
14,046	0.2	0.5	0.7	0.9	1.2

Table B-2 Standard Errors of Estimated Percentages of Blacks
(68 chances out of 100)

Base of percentage (thousands)	Estimated percentage				
	1 or 99	5 or 95	10 or 90	20 or 80	50
25	3.3	7.3	10.0	13.3	16.7
50	2.3	5.1	7.1	9.4	11.8
100	1.6	3.6	5.0	6.6	8.3
200	1.2	2.5	3.5	4.7	5.8
750	0.6	1.3	1.8	2.4	3.0
1,400	0.4	1.0	1.3	1.8	2.2
2,041	0.4	0.8	1.1	1.5	1.8

men in the age category 14 to 24. Our estimates indicate that 21 percent of these white men in our sample are married. Entering the table for white men (B-1) with the base of 14,046,000 and the percentage 20, one finds the standard error to be 0.9 percent. Thus chances are two out of three that a complete enumeration would have resulted in a figure between 20.1 and 21.9 percent (21 ± 9.0) and 19 out of 20 that the figure would have been between 19.2 and 22.8 percent (21 ± 1.8).

Standard Errors of Differences between Percentages

In analyzing and interpreting the data, interest will perhaps most frequently center on the question whether observed *differences* in percentages are "real," or whether they result simply from sampling variation. If, for example, one finds on the basis of the survey that 3.3 percent of the whites, as compared with 7 percent of the blacks, are unable to work, the question arises whether this difference actually prevails in the population or whether it might have been produced by sampling variation. The answer to this question, expressed in terms of probabilities, depends on the standard error of the difference between the two percentages, which, in turn, is related to their magnitudes as well as to the size of the base of each. Although a precise answer to the question would require extended calculation, it is possible to construct charts that will indicate roughly, for different ranges of bases and different magnitudes of the percentages themselves, whether a given difference may be considered to be "significant," i.e., is sufficiently large that there is less than a 5 percent chance that it would have been produced by sampling variation alone. Such charts are shown below.

The magnitude of the quotient produced by dividing the difference between any two percentages by the standard error of the difference determines whether that difference is significant. Since the standard error of the difference depends only on the size of the percentages and their bases, for differences centered around a given percentage it is possible to derive a function which relates significant differences to the size of the bases of the percentages. If a difference around the given percentage is specified, the function then identifies those bases which will produce a standard error small enough for the given difference to be significant. The graphs which follow show functions of this type; each curve identifies combinations of bases that will make a given difference around a given percentage significant. For all combinations of bases on or to the northeast of a given curve, the given difference is the maximum difference necessary for significance.

Thus, to determine whether the difference between the two percentages is significant, first locate the appropriate graph by selecting the one labeled with the percentage closest to the midpoint between the two percentages in question. When this percentage is under 50, the base of the larger percentage should be read on the horizontal axis of the chart and the base of the smaller percentage on the vertical axis. When the midpoint between the two percentages is greater than 50, the two axes are to be reversed. (When the midpoint is exactly 50 percent, either axis may be used for either base.) The two coordinates identify a point on the graph. The relation between this point and the curves indicates the order of magnitude required for a difference between the two percentages to be statistically significant at the 5 percent confidence level.[2]

---

[2] The point made in footnote 1 is equally relevant here. The graphs should be interpreted as providing only a rough (and probably conservative) estimate of the difference required for significance.

All this may be illustrated as follows. Suppose in the case of the whites the question is whether the difference between 27 percent (on a base of 6,000,000)[3] and 33 percent(on a base of 5,000,000) is significant. Since the percentages center on 30 percent, Figure 4 should be used. Entering the vertical axis of this graph with 6,000,000 and the horizontal axis with 5,000,000 provides a coordinate which lies to the northeast of the curve showing combinations of bases for which a difference of 5 percent is significant. Thus the 6 percentage point difference (between 27 and 33)percent is significant.

As an example of testing for the significance of a difference between the two color groups, consider the following. The data in our study show that for young men in the age cohort 22-24, 96 percent of the blacks (on a base of 406,000) and 92 percent of the whites (on a base of 3,045,000) are in the labor force. To determine whether this inter-color difference is statistically significant, Figure 1 is used because the midpoint (94 percent) between the two percentages is closer to 95 than 90.[4] Entering this graph at 406,000 on the vertical axis for blacks (calibrated on the right hand side of the figure) and at 3,045,000 on the horizontal axis for whites provides a coordinate which lies to the northeast of the 4 percent curve. Thus, the 4 percentage point difference in labor force participation rate is significant.

---

[3] Each of the curves in the graphs of this appendix illustrates a functional relationship between bases expressed in terms of actual sample cases. For convenience, however, the axes of the graphs are labeled in terms of blown up estimates which simply reflect numbers of sample cases multiplied by a weighting factor.

[4] If both percentages are less (greater) than 50 and the midpoint between the two percentages is less (greater) than the percentage for which the curves were constructed, the actual differences necessary for significance will be slightly less than those shown on the curve. The required differences shown on the curves understate the actual differences necessary for significance when both percentages are less (greater) than 50 and the midpoint is greater (less) than the percentage for which the curves were constructed.

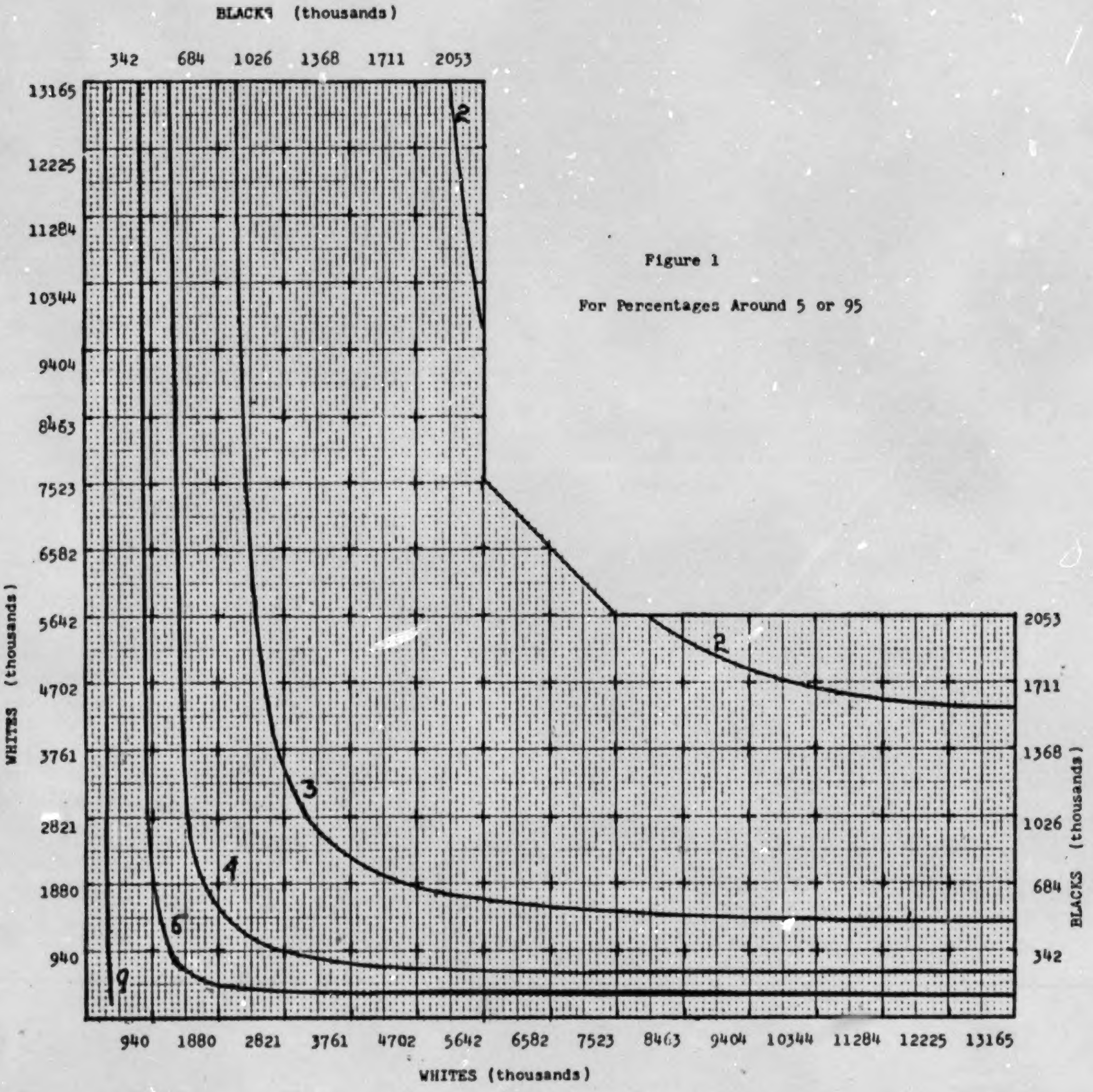


Figure 1

For Percentages Around 5 or 95

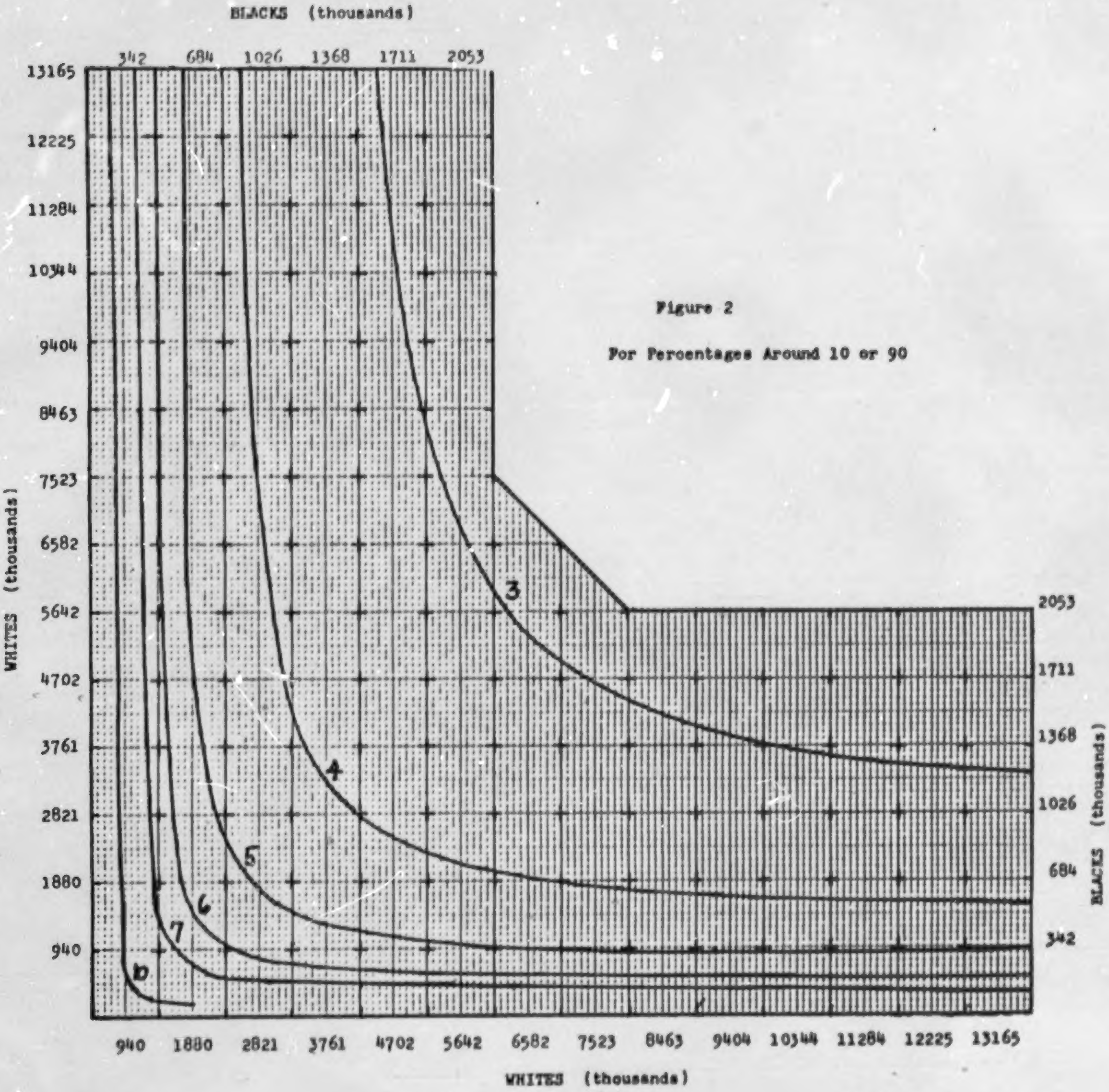


Figure 2

For Percentages Around 10 or 90

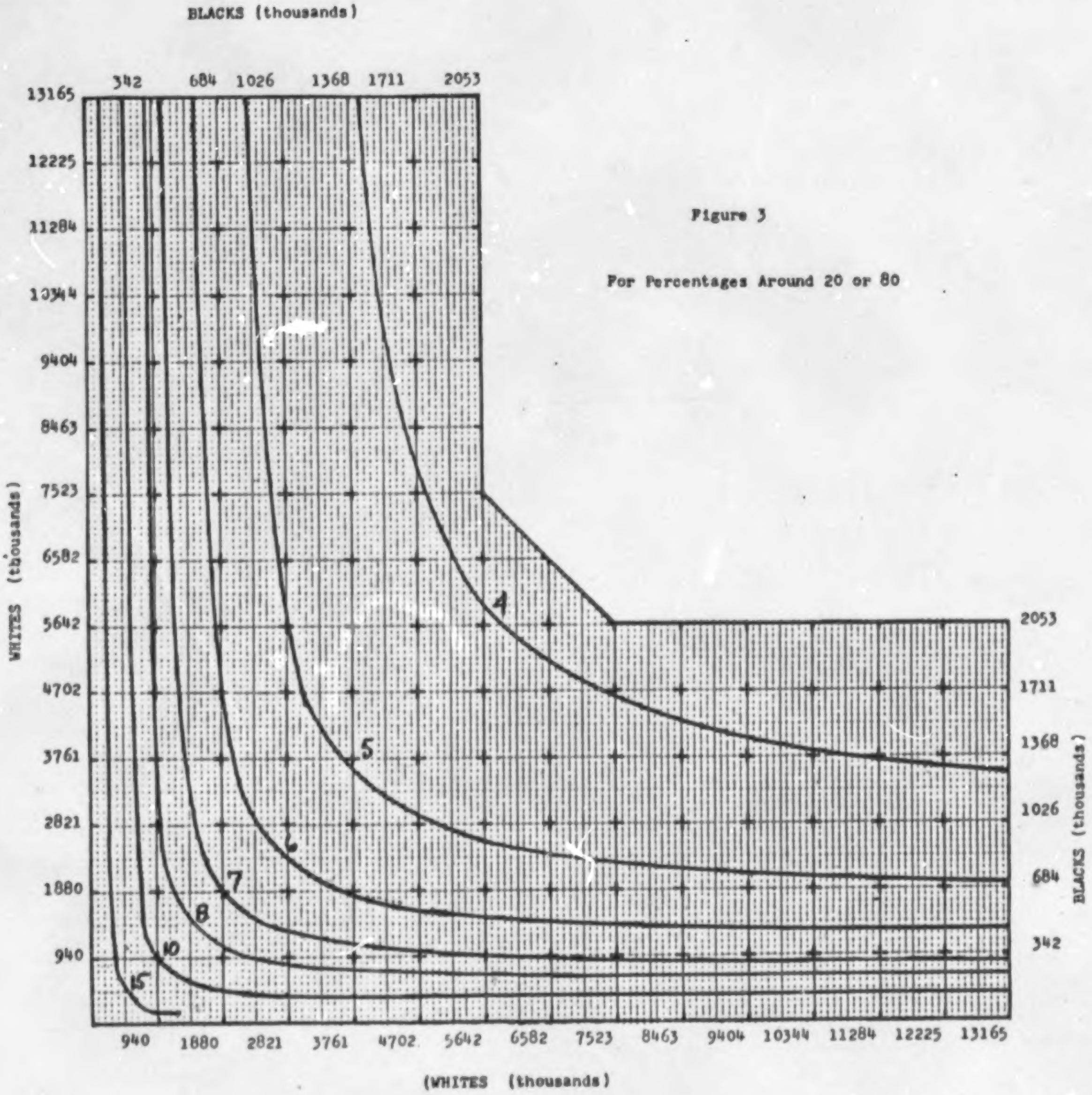


Figure 3

For Percentages Around 20 or 80

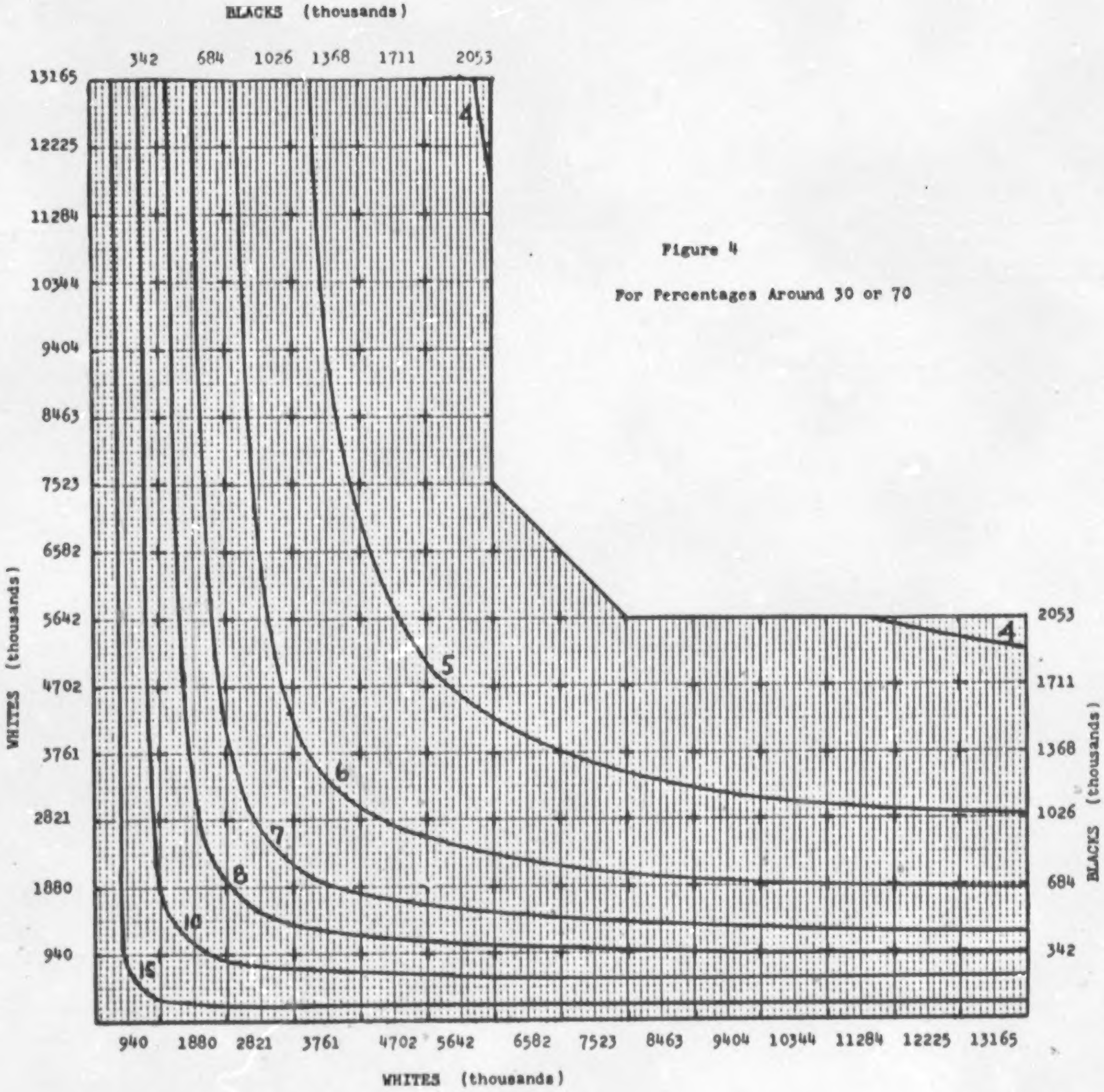
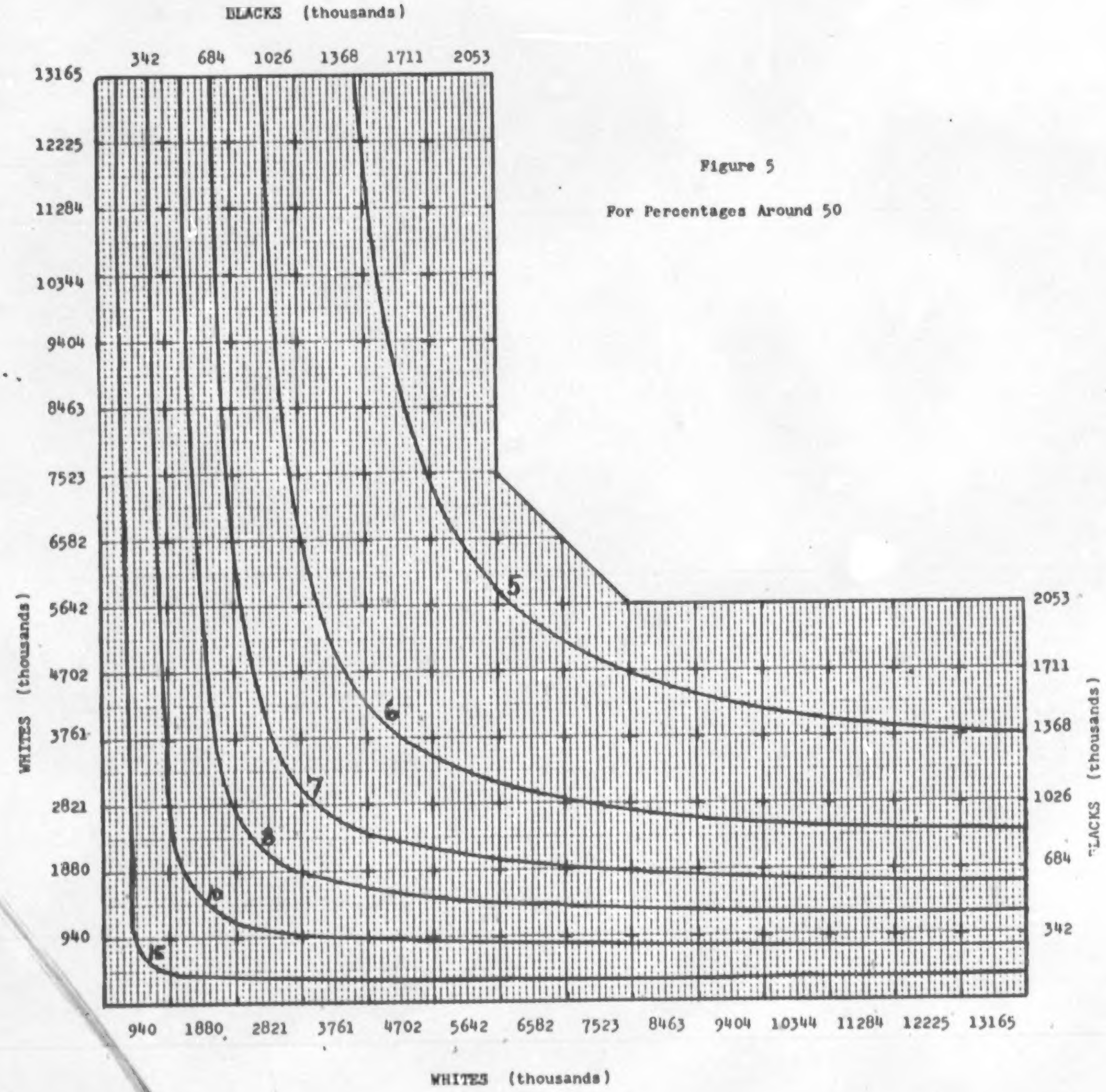


Figure 4

For Percentages Around 30 or 70

Figure 5

For Percentages Around 50



Appendix C

ENTERPRISING OCCUPATIONS

This appendix lists all detailed occupational titles in the 1970 census that are classified as enterprising occupations in Holland's (1973) scheme. The occupations are listed in descending order of occupational prestige. The number of workers employed in each occupation is also provided (U.S. Bureau of the Census, 1973, pp. 585-592).

See Gottfredson and Brown (1978) for an explanation of how census titles were classified by Holland code and occupational prestige, and for a list of detailed titles in all Holland categories of work, together with their three-letter Holland codes and occupational prestige scores. See the Classified Index of Industries and Occupations (U.S. Bureau of the Census, 1971) for all the specific occupational titles subsumed under the census titles.

The abbreviation n.e.c. stands for not elsewhere classified.

Occupational Title	Number of Workers in Occupation in 1970
Judges	12,943
Law college teachers	3,005
Lawyers	263,745
Stock and bond salesmen	98,135
Industrial engineers	191,063
Sales engineers	59,200
Managers, durable goods manufacturing; salaried	373,138
Finance, insurance, and real estate managers; salaried	153,600
Managers, nondurable goods manufacturing; salaried	271,323
Sales managers, except retail trade	254,494
Managers, all other industries; salaried	211,811
Bank officers and finance managers	313,338
Real estate appraisers	22,475
Operations and systems researchers and analysts	78,753
Personnel and labor relations workers	292,192
Finance, insurance, and real estate managers; self-employed	22,818
Office managers, n.e.c.	216,006
Communications, utilities, and sanitary service managers; salaried	101,347
Insurance adjusters, examiners, and investigators	96,289
Business and repair services managers; salaried	124,662
Officers and administrators, public administration	239,306
Wholesale trade managers; salaried	224,533
Construction managers; salaried	239,301
Transportation managers; salaried	131,265
Buyers, wholesale and retail trade	178,061
Retail managers, furniture; salaried	39,503
Wholesale trade managers; self-employed	56,093
Insurance agents, brokers, and underwriters	459,237
Purchasing agents and buyers, n.e.c.	162,256
Managers, nondurable goods manufacturing; self-employed	28,610
Retail managers, apparel; salaried	56,210
Managers, durable goods manufacturing; self-employed	38,102
Postmasters and mail superintendents	34,572
Buyers and shippers, farm products	20,636
Radio and TV announcers	21,705
Retail managers, general merchandise; salaried	97,023
Managers, all other industries, self-employed	39,785
Retail managers, hardware; salaried	49,270
Sales managers and department heads, retail trade	211,870
Retail managers, motor vehicle; salaried	98,173
Real estate agents and brokers	261,300
Retail managers, other retail; salaried	111,404
Retail managers, apparel; self-employed	24,079
Sales representatives, manufacturing industries	413,983
Retail managers, motor vehicles; self-employed	24,749
Business and repair services managers; self-employed	51,428

Occupational Title	Number of Workers in Occupation in 1970
Retail managers, furniture; self-employed	27,385
Retail managers, food stores; salaried	138,718
Personal services managers; salaried	91,105
Retail managers, hardware; self-employed	29,099
Retail managers, general merchandise; self-employed	23,885
Construction managers, self-employed	139,514
Transportation managers, self-employed	20,540
Airline stewardesses	33,795
Retail managers, other retail; self-employed	86,936
Restaurant, cafe, and bar managers	322,761
Sales representatives, wholesale trade	636,581
Communications, utilities, and sanitary services managers; self-employed	2,200
Personal services managers; self-employed	73,306
Salesmen of services and construction	226,541
Salesmen, retail trade	455,272
Retail managers, food stores; self-employed	116,040
Farm managers	60,366
Retail managers, gas stations; self-employed	100,308
Retail managers, gas stations; salaried	65,129
Auctioneers	5,203
Dispatchers and starters, vehicle	60,063
Boarding- and lodging-house keepers	7,481
Sales clerks, retail trade	2,262,192
Deliverymen and routemen	611,029
Demonstrators	39,046
Hucksters and peddlers	120,277
Newsboys	64,419